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# Lunar Soils Grain Size Catalog

John C. Graf

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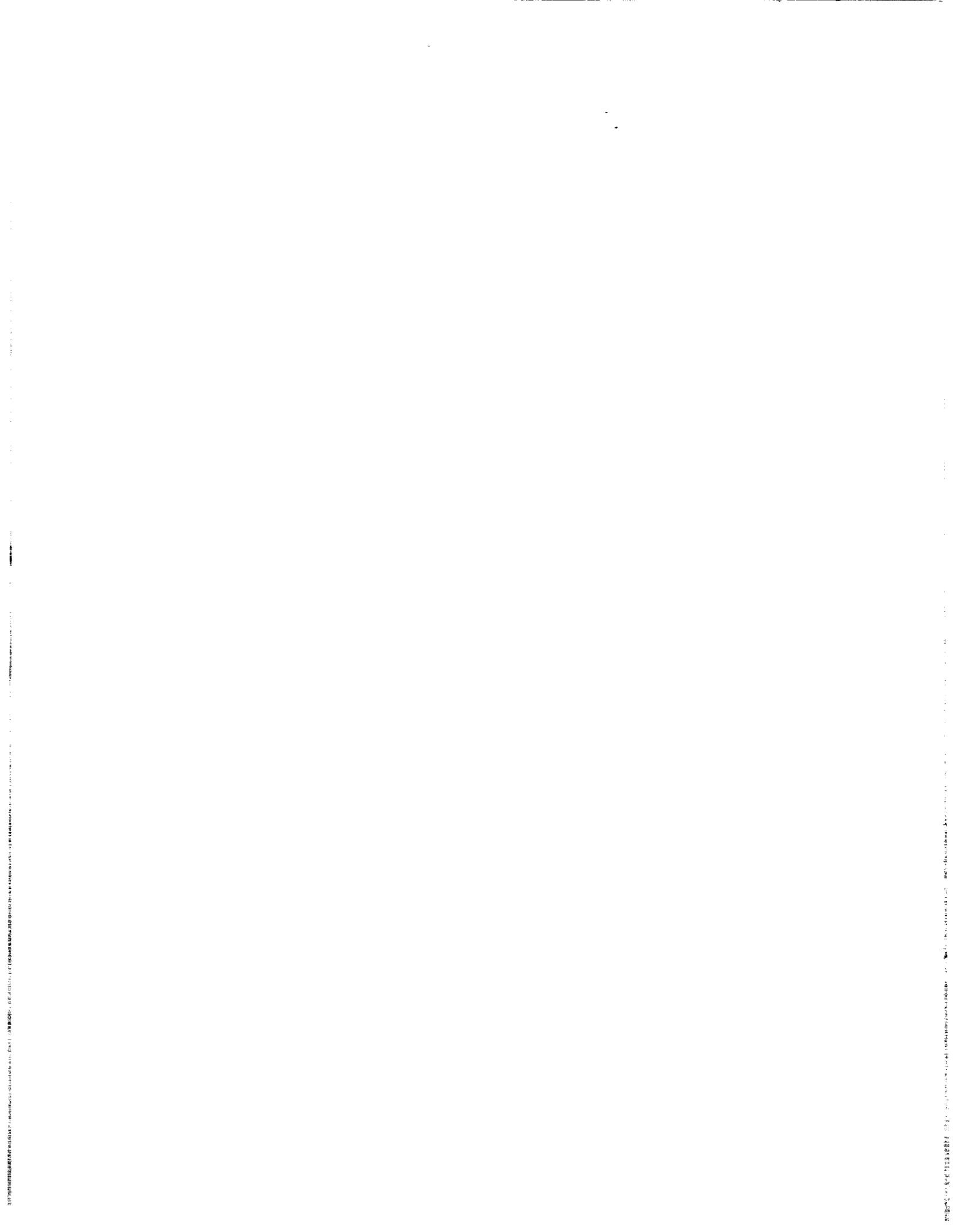
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NASA

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15-11-14  
P-484



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Reference  
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1993

# Lunar Soils Grain Size Catalog

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**NASA**

National Aeronautics and  
Space Administration

Office of Management

Scientific and Technical  
Information Program



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## INTRODUCTION

Two-hundred eighty-seven size analyses from 143 different lunar samples collected during the Apollo and Luna missions are listed in this catalog. Where possible, a photograph of the sample location and description of the sample environment accompany each size analysis. The grain size distribution of a soil is a basic geological and geotechnical classification parameter and reflects the extent of meteorite bombardment and evolution of the soil. It also affects the strength, compressibility, thermal, optical, and seismic properties.

Variation of the size distribution from site-to-site can help determine the local geology and ejecta distributions. Surface photographs can provide a qualitative look at the distribution of fragments between 1 cm and 5 m (particles too big for sieve analysis and too small to be resolved from orbit). A complete listing of lunar soil size distributions combined with site photographs will give engineers designing a lunar base a qualitative feel for the environment on the surface of the Moon, as well as specific, quantitative, geotechnical requirements.

The catalog is organized by sample number. Site maps precede each Apollo mission to locate samples relative to one another and relative to major geologic units. Photographs precede sample data. If a sample has been sized by two people at two laboratories, both sets of data are shown. Within a core, samples are ordered stratigraphically rather than by subsample number.

Much of the original data listed in this catalog is unpublished. A bibliography is included at the end of this catalog, and the sample principal investigator (PI) is included to assist any literature searches. Sample environment photographs are a synthesis of four data sets: a set of lunar surface photographs provided by the Public Affairs Office at the Lyndon B. Johnson Space Center, a set of U.S. Geological Survey (USGS) sample environment catalogs, a set of Apollo extravehicular activity voice transcriptions, and the Handbook of Lunar Soils.

## SAMPLE COLLECTION

### Apollo 11

There were no special procedures developed for soil sampling during Apollo 11. The contingency sampler was designed to scoop up rocks and soil without leaving the safety of the lunar module (LM) footpad. During Apollo 11, the commander stepped onto the surface and collected a full bag of rocks and soil, scooping several times. A large bulk sample was collected at the end of the sampling period by scooping soil into the main rock box to fill the void space left between rock samples. Two single drive tubes were pounded into the surface with a hammer. Much of the sample was lost during extrusion.

### Apollo 12

The contingency sample was collected during Apollo 12 in the same manner as for Apollo 11. Selected soil and rock samples were collected over an area 300 m northwest of the LM. As in Mission 11, the void space between rocks was filled with soil in the sample collection bag. Apollo 12 was the first mission to use documented sample bags. After noting the location and documenting some of them with photographs, one astronaut held the bag while the other scooped soil samples into it. The bag was then sealed and dropped into the sample collection bag. Two small containers that held a vacuum were filled with soil in the same manner as the documented bags. Three drive tubes of a new design were hammered into the surface and extruded. In addition, one trench was dug for the first trench samples collected.

### Apollo 14

The contingency sample for Apollo 14 was collected in the same manner as during previous missions. Whenever possible, other sampling locations were documented by photography taken cross-Sun and down-Sun, and before and after sampling. In several cases, the locations are based on transcripts. Samples were collected by scooping, with one astronaut holding the bag while the other filled it. A special trenching tool was used for collecting trench samples, and three drive tubes (one double tube) were hammered into the soil.

### Apollo 15

Samples collected with the adjustable scoop were skimmed (upper 1 cm), scooped (upper 1 to 5 cm), or selected from layers exposed in trench walls. Soil samples collected to accompany rake samples were collected with the solid wall of the rake or with a scoop. Whenever possible, the sample location was photographed before and after sampling. Almost every soil sampled is documented with a photograph. In addition to three drive tubes, the first deep core was collected with a rotary percussive drill.

### Apollo 16

The same tools and procedures were used to collect and document samples as in Apollo 15. Five drive tubes, one deep drill core, and two trenches were part of the sampling program.

### Apollo 17

Collection and documentation methods of soil samples during the Apollo 17 mission were the same as those methods used during Apollo 15 and 16. For the first time, samples were collected directly without leaving the lunar rover. The area to be sampled was often photographed before reaching it; then the astronauts drove up and collected samples. Three sets of trench samples, five drive tubes, and one deep drill core were collected.

## SAMPLE PROCESSING BY THE CURATOR

Nearly every sample issued to a PI has been prescreened by the curator with a dry sieve; the soil issued is <1 mm. Samples from Apollo 14, 15, 16, and 17 missions were screened at 10-mm, 4-mm, 2-mm, and 1-mm sizes. The curator issued .25 to .5 g of sample to PIs for detailed sieve analysis. There are concerns expressed in the literature that these smaller samples were not always representative.

### Apollo 11

The bulk soil sample was initially processed in a vacuum chamber, but was later moved to N<sub>2</sub>-filled glove cabinets. Due to the quarantine requirements, negative pressure was

maintained in the cabinets and the exterior of the sample containers was sterilized with steam and peracetic acid. The quarantine conditions were maintained at considerable cost to sample integrity. The work area was very crowded with equipment, increasing the chances for contamination. Soil samples were used for the monopole experiments, soil mechanics tests, sieving, etc. Coarser sieve fractions were described and photographed in the Bio-Prep Laboratory. All soil samples were prescreened to  $< 1$  mm before being released to sample PIs. Records of the corresponding rock chips  $> 1$  mm were not kept.

### Apollo 12

Rock and soil samples were processed in a vacuum. The documented and contingency samples and cores were processed in  $N_2$ -filled glove cabinets. Fifty grams of core material and 450 g of rock and soil were designated for biological testing. Most of the bags were opened and given a preliminary description. The soils were then placed in stainless steel cans for storage. Several documented samples were sieved at 1-cm and 1-mm intervals. The rock chips in the coarser fractions were individually described. Some soils released to sample PIs were prescreened to  $< 1$  mm, but some were unscreened.

### Apollo 14

The Apollo 14 samples were processed in stainless steel  $N_2$ -filled glove cabinets that were held under negative pressure as required by quarantine procedures. Each sample was sieved into  $> 1$ -cm, 4- to 10-mm, 2- to 4-mm, 1- to 2-mm, and  $< 1$ -mm fractions. Each fraction was weighed, assigned a sample number, and then stored in stainless steel cans. Aliquots of several soil samples were used by the preliminary examination team for grain size, chemical, and petrographic analyses. The  $< 1$ -mm aliquots were wet-sieved with freon at 500-, 250-, 125-, 62.5-, and 31- $\mu$  intervals using 3-in. diameter stainless steel sieves.

### Apollo 15, 16, and 17

Commencing with Apollo 15, no quarantine was required and the samples were processed in stainless steel glove boxes filled with dry  $N_2$  under positive pressure. The documented bags were opened, photographed, and described. Any rocks  $> 1$  cm were removed. One-quarter to one-third of the sample was scooped from the bag, placed in a preweighed container, weighed, and stored as an unsieved reserve sample. The remaining sample was sieved with

the same procedure that was used during Apollo 14. Each size fraction was weighed and given its own 5-digit sample number.

The following is pertinent to the curator's processing of drill cores and drive tubes. The core dissector handpicked many large or spectacular fragments from the core. Everything else was put into a 1-mm sieve. Core soil samples allocated to PIs are <1 mm. Because the core dissector handpicks some friable fragments, and because the 1-mm sieving is generally done more gently with small amounts of sample, large, friable fragments are more likely to remain intact. As a result, the size distribution of a core sample is likely to be falsely skewed for sizes >1 mm.

## SAMPLE SIEVING BY THE INVESTIGATOR

Much of the sieving was done at one of two laboratories: either at the University of Houston with Butler and King et al., or at NASA-JSC with Heiken, McKay, and Fruland et al. Their laboratory procedures are briefly described in their publications. The following sample sieving procedure is from Butler and King (1974).

"Grain size-frequency distributions of 72 samples of lunar fines have been completed by sieving with an Allen Bradley sonic sifter and precision sieves; all sieves have square apertures. From 841 to 37 microns the sieves are woven mesh and from 30 to 10 microns the sieves are electroformed. Relative humidity was controlled in the sieving chamber so as to prevent clumping of the less than 30 micron fraction and the "thumping" action was minimized to preserve the delicate agglutinates. Visual inspections under binocular microscopes did not reveal clumping of the finer fractions. Weight of sample retained on each of 14 sieves and the pan fraction was measured to the nearest 0.0001 g and grain size statistics were calculated according to the method of Folk (1968)."

The procedures performed at NASA-JSC are described in McKay, Fruland, and Heiken (1974).

"Methods for size analysis were similar to those previously described (McKay et al., 1972; Heiken et al., 1973). Soils were initially sieved in the Lunar receiving Laboratory at size intervals of >1 cm, 4 mm, 2 mm and 1 mm. Our allocation, usually .25 g, was sieved at 500, 250, 150, 90, 75, 45, and 20 microns. Below 20 microns the soil was sized by analyzing a dispersed grain mount with a Millipore computer-coupled optical microscope which provided relative numbers of particles in the size intervals 20-16,

16-8, 8-4, 4-2, and 2-1 micron. The number of particles in each size interval as determined by the Millipore system was multiplied by an average particle volume for that size interval to determine the total volume in each size interval. The average particle volume for each size interval was taken as half the sum of the volumes of two spheres having diameters equal to the endpoints of the size interval. The total volume in each size interval was then converted to a vol.% of the sample from 1 to 20 microns. It was assumed that the average particle densities are equal from size interval to size interval so that the vol.% is equal to the wt.%. Finally, the weight percents were normalized to the entire sample by multiplying by the fraction of sample finer than 20 microns and the combined data from sieving and the Millipore system were plotted on probability paper as a cumulative curve. Graphical size parameters as defined by Folk and Ward (1957) were determined from the cumulative curve and Histograms were constructed at 1  $\phi$  size intervals.”

## PRESENTATION, GRAPHING, AND COMPUTATION

A standard format is used for sample presentations including sample number, subsample number, the name of the sample PI, location comments, maturity index, original size data, a cumulative weight distribution curve, a size distribution histogram, moment measure data, and standard statistical parameters.

Each sample is given a 5-digit sample number. Samples collected during Apollo 15, 16, and 17 have a structured numbering scheme. The first digit describes the mission, the next digit(s) describes the station where it was collected. The last digits describe the type of sample. Soil samples generally end in “00” and rake samples generally end in “10.” When the curator sieves a sample, the untouched reserve sample and samples < 1 mm, 1 to 2 mm, 2 to 4 mm, and 4 to 10 mm get sample numbers ending with “00”, “01”, “02”, “03”, and “04”, respectively. Subsample numbers have much less structure and refer to curatorial records. The curator’s records indicate the PI responsible for the soil sample which was sieved.

Location comments describe the local geology, crater and fragment population, slope, and list any comments the astronauts may have had when collecting the sample. Munsell color descriptions were not included because records were inconsistent and unreconcilable. Location comments came from a variety of sources, including the Apollo voice transcriptions and the USGS sample environment catalogs.

Maturity index values all came from the laboratory of Richard Morris. These values are widely reported in many different publications; many of these values are tabled in Morris, 1976. Following this classification, immature index values are  $<30$ , submature index values are 31 to 60, and mature index values are  $>60$ .

The original size that is labeled "Tabulated Sieve Data" often is a merging of three sets of data. The sizes  $>1$  mm were usually done by the curator with a large sample. A smaller sample is sieved by the sample PI for sizes ranging from 1 mm to  $20 \mu$ . A still smaller sample is often optically analyzed by the sample PI for sizes smaller than  $20 \mu$ .

The cumulative weight distribution curve is a direct plot of the sieve data. A curve which passes through each data point is drawn using Stineman interpolation techniques. A macro written in Microsoft Excel Macro language reads the interpolated curve and generates histogram data with step sizes of  $1 \phi$ . Both graphs assume a top particle size of 10 mm, and 99 percent held in  $1 \mu$  for all soils (Weeks, 1974).

Moment measure data was obtained with the same Microsoft Excel Macro that generated histogram data. These moment measures are used to calculate the statistical terms described below.

## STATISTICAL MEASURES

There are several statistical terms that can be derived from the cumulative curve that have geological significance. There are several ways to compute these terms; we chose a method of graphic measures (Folk, 1964). Graphic measures quickly provide a good approximation, are well suited to computer analysis, and results are less sensitive to the number of data points. The "method of moments" assumes that within a given class interval, particles have a center of gravity at the halfway mark of that class. This is often shown not to be the case. Graphic methods do not require this assumption. Our interpolation was based on the Stineman method and allowed for skewed distributions within a class interval (Stineman, 1980). Graphic methods allow for a more consistent way of representing the finest grain sizes. All size analysis methods require a closed size distribution range. The range of the lunar size data included in this catalog is 10 mm to  $1 \mu$ . Weeks has shown that for at least two lunar soils, approximately 1 percent of the soil particles are smaller than  $1 \mu$  (Weeks, 1974). Using graphic methods, we can normalize data to 99 percent held at  $1 \mu$ . Whenever possible, the range of sizes of lunar soils is 10 mm to  $1 \mu$ . Some samples, such as core sections, are not large enough to represent the 1-mm to 10-mm range accurately. These samples have a size range of 1 mm to  $1 \mu$  (99 percent held).

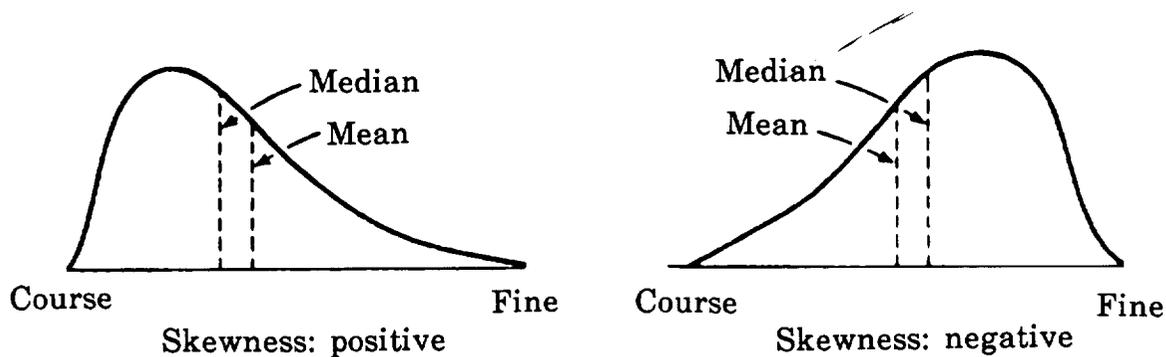
Formulas for the graphic measures listed below come from Folk and Ward (1957).

Name	Graphic Formula
Mean	$Me\phi = \frac{\phi_{16} + \phi_{50} + \phi_{84}}{3}$
Median	$Md\phi = \phi_{50}$
Mode	$M\phi =$ Midpoint of the most abundant class
Sorting	$SI = \frac{\phi_{84} - \phi_{16}}{4} + \frac{\phi_{95} - \phi_5}{6.6}$
Skewness	$SKI = \frac{\phi_{95} + \phi_5 - 2\phi_{50}}{2(\phi_{95} - \phi_5)} + \frac{\phi_{84} + \phi_{16} - 2\phi_{50}}{2(\phi_{84} - \phi_{16})}$
Kurtosis	$KG = \frac{\phi_{95} - \phi_5}{2.44(\phi_{75} - \phi_{25})}$

The mean, median, and mode are all measures of the central tendency. The mean can be thought of as the center of gravity of the size distribution. The median is the value where 50 percent of the soil is larger and 50 percent is smaller. The mode is the midpoint of the most abundant size class. Of the three, the mode is the most variable and easily manipulated term. Changing the increment of step size will change the value of the mode. To keep internal consistency in this data set, the step size used for histogram graphs and finding the mode is always 1  $\phi$ . This limits the value of the mode to be 2.5  $\phi$ , 3.5  $\phi$ , or 4.5  $\phi$ , etc. If the step size were smaller, there would be more allowable values for the mode.

The value for sorting can be thought of as the standard deviation of the size distribution. In the strictest sense, we cannot use the term standard deviation because the size distribution has a phi scale and because we calculated sorting with a graphic formula rather than a moment formula. Nevertheless, both sorting and standard deviation are population parameters which describe the shape of a distribution. Sorting is expressed in units of  $\phi$ . A nearly perfect sorting with all grains of similar size would have a sorting parameter of less than 1  $\phi$ . As the size distribution becomes more spread out, the sorting parameter becomes larger.

Skewness can be best described with the figure below (Friedman, 1961). Mean is the center of gravity of the distribution, and median is the 50 percent passing point. If the median is on the coarse side of the mean, the central trend is coarse, the extended tail is fine, and the distribution is said to be positively skewed. Similarly, if the central trend is finer than the mean, the distribution is said to be negatively skewed.



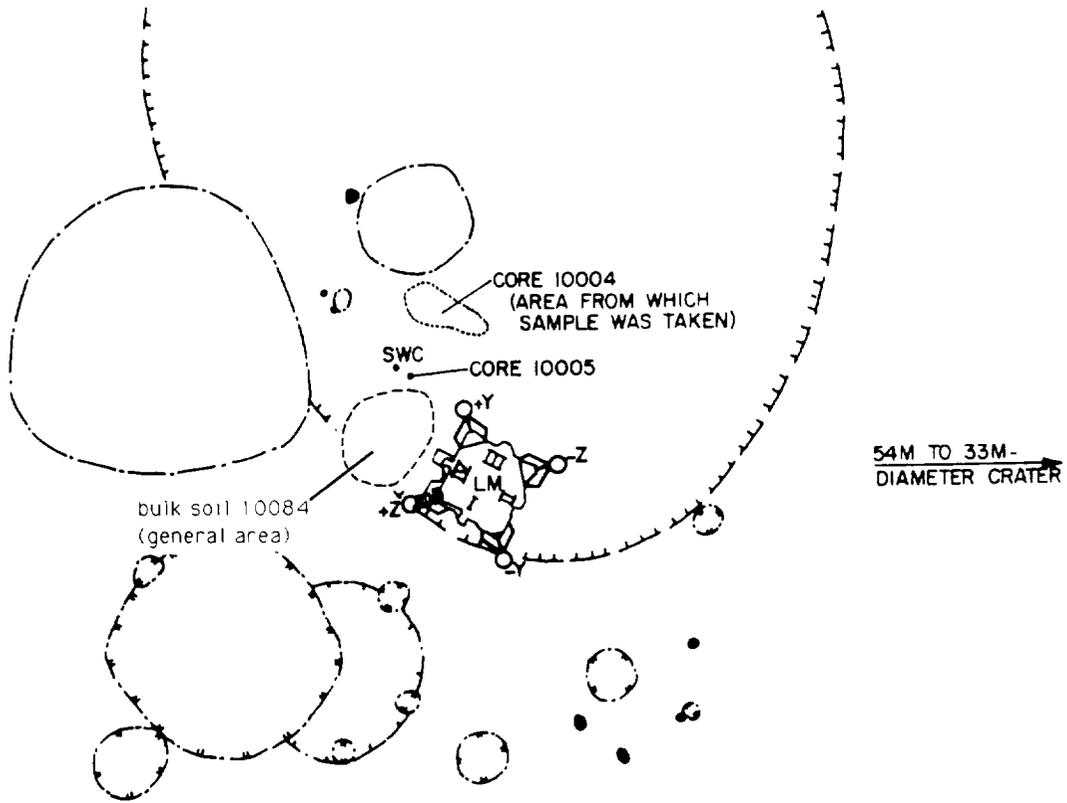
Roughly speaking, kurtosis is a measure of the peakedness of a distribution. If a distribution is flatter than a normal one, it is called platykurtic; if it is more peaked, it is called leptokurtic.

#### APOLLO 11 GRAIN-SIZE DATA

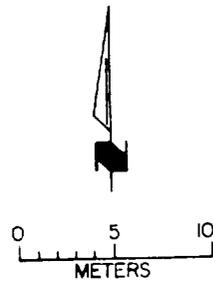
There is much confusion regarding the size distribution of Apollo 11 soils. An excellent summary is given by Carrier (1973).

“The data for the Apollo 11 samples must be approached with caution. The Lunar Sample Preliminary Examination Team (LSPET) measurements immediately were recognized to be too coarse below approximately .1mm, as a result of improper equipment and insufficient time to perform the analyses in the Lunar Receiving Laboratory (LRL). McKay et al report sieving times of 10 to 20 hours for 0.25 gm samples; the LSPET was constrained to sieving 25 gm samples in a few minutes. As the samples were being sieved, it was obvious to the LSPET members that the finer particles were sticking to each other, to coarser particles, and to the sieves. As a result, the grain size distribution curves were biased to the coarser fractions. Conversely, it also was clear that the lunar soil was not nearly so fine-grained as some had predicted.





- SHALLOW DEPRESSION
- - - VERY SUBDUED CRATER
- SUBDUED CRATER
- RELATIVELY SHARP CRATER
- ROCK
- SWC SOLAR WIND COMPOSITION



Map of Apollo 11 landing site  
 modified from the Apollo 11  
 Preliminary Science Report.

"All other Apollo 11 samples sieved are, in fact, subsamples of one large sample: 10084. Furthermore, this sample was passed through a 1-mm sieve in the LRL before distribution to the various investigators. Unfortunately, the weight of the soil coarser than 1mm was never recorded; thus, it has not been possible to make a direct correction of the investigator data for determination of the lunar surface grain size distribution. The data from these investigators fall together in a band, except for the sample analyzed by Hapke, which is significantly finer than the others. Because of this, the data from Hapke has been neglected in the analysis that follows.

"The samples analyzed by Lindsay, which came from core tube 10005, are the only samples besides the LSPET samples that include the plus-millimeter fraction. However, when the submillimeter portion of Lindsay's data is compared with the data from the other investigators, it is found that his distributions are consistently and significantly coarser. A similar comparison of Lindsay's data for Apollo 12 samples reveals the same trend; his distribution curves are always coarser than those of other investigators. It has been concluded that Lindsay's data have suffered from some of the same problems as the LSPET data, although to a lesser degree.

"Consequently, we are faced with the fact that a complete grain size distribution is not known for a single Apollo 11 sample.

"Nonetheless, indirect corrections of the submillimeter data are possible. For example, Duke et al corrected their data by including the plus-millimeter portion of the LSPET data. These data indicated that the plus-millimeter fraction was roughly 10 to 12% of the total sample weight."

To minimize confusion, the size distribution of 10084, published by Duke et al., is the only Apollo 11 size distribution presented in this catalog.

**Soil: 10084**  
(subsample 10084,79)  
G.A. Sellers PI

**LOCATION COMMENTS:**

There were three surface soil samples collected during Apollo 11. The contingency sample was taken in front of quad IV of the LM. The documented sample was collected 5 meters north of the LM, and the bulk sample was collected in front of quad IV by pouring scoops of loose soil to fill the voids left between rock samples in the bulk sample container. 10084 is the bulk soil sample. The soil is fine grained and hard in this sample area. There are few fragments and it is difficult to scoop deeper than 5 cm below the surface.

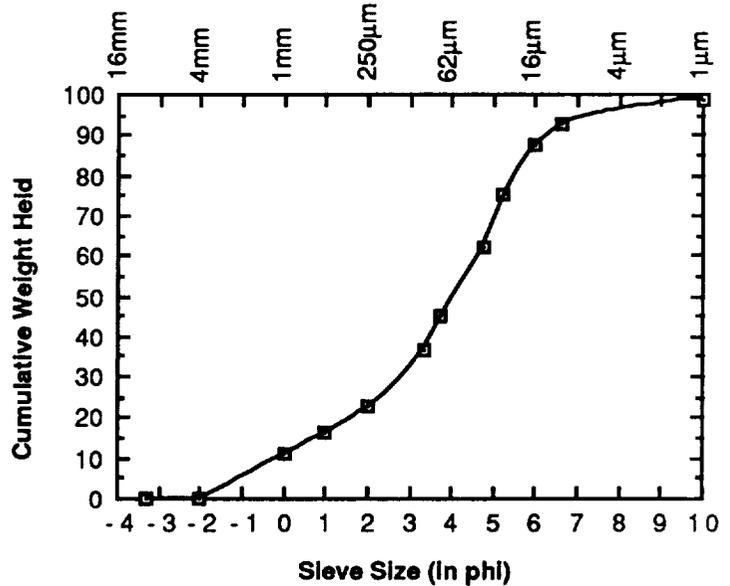
**MATURITY INDEX:**

$I_p/FeO = 48$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
1000.00	10.99
500.00	5.35
250.00	6.43
100.00	13.86
75.00	8.41
37.00	17.33
27.00	12.87
16.00	12.38
10.00	5.45
70.00	2.97
10.00	2.97

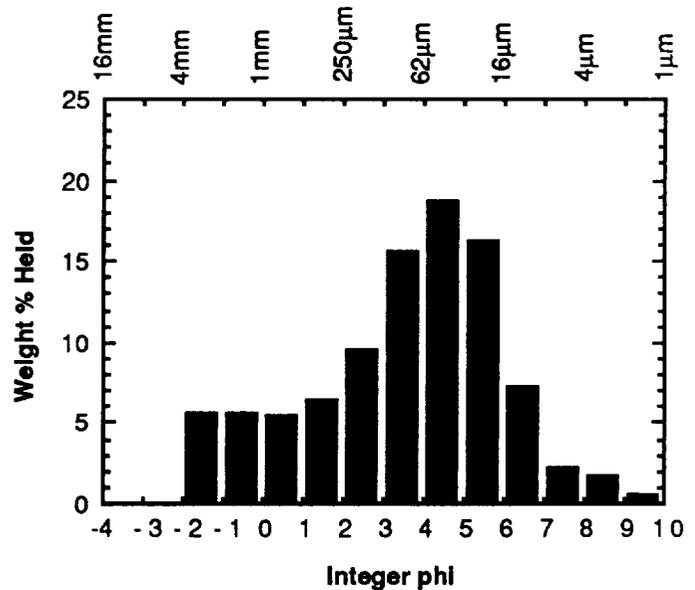
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

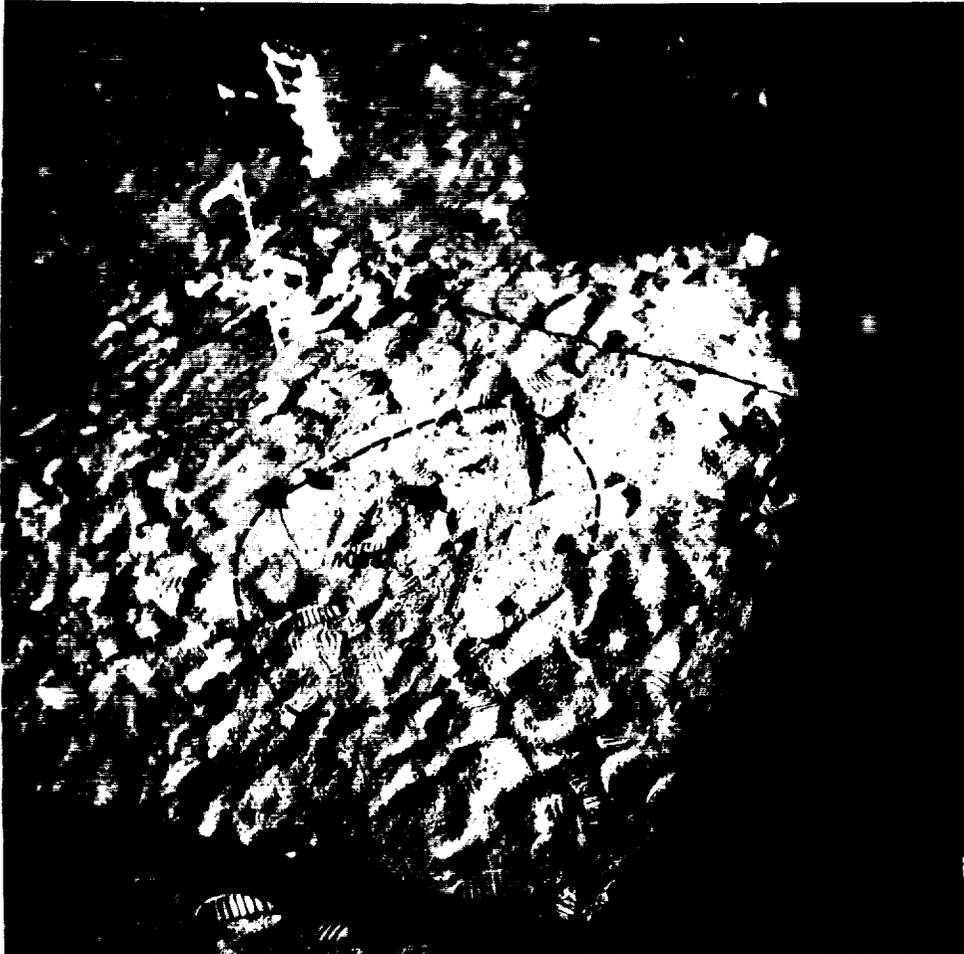
Mean:	3.55
Median:	4.02
Mode:	4.50
Sorting:	2.06
Skewness:	-0.54
Kurtosis:	0.81

**SIZE DISTRIBUTION HISTOGRAM**



**MOMENT MEASURE DATA**

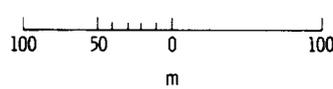
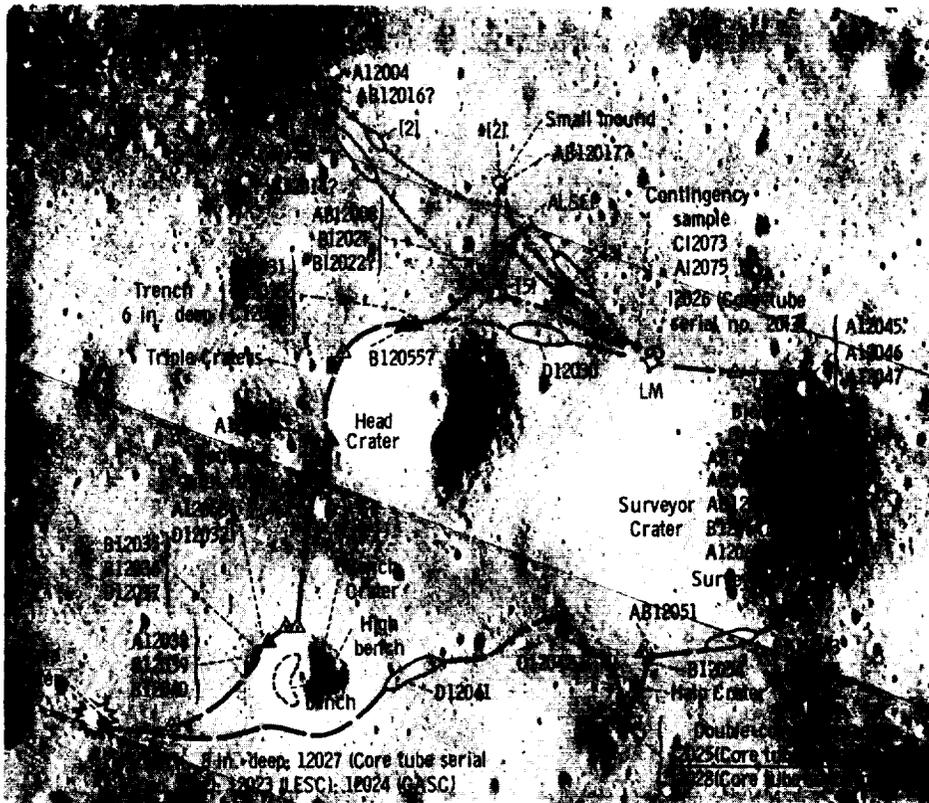
Wt % held	$\phi$ size
5	-1.09
16	0.94
25	2.28
50	4.02
75	5.20
84	5.68
95	4.66



10084 Sample Environment

AS11-39-5802

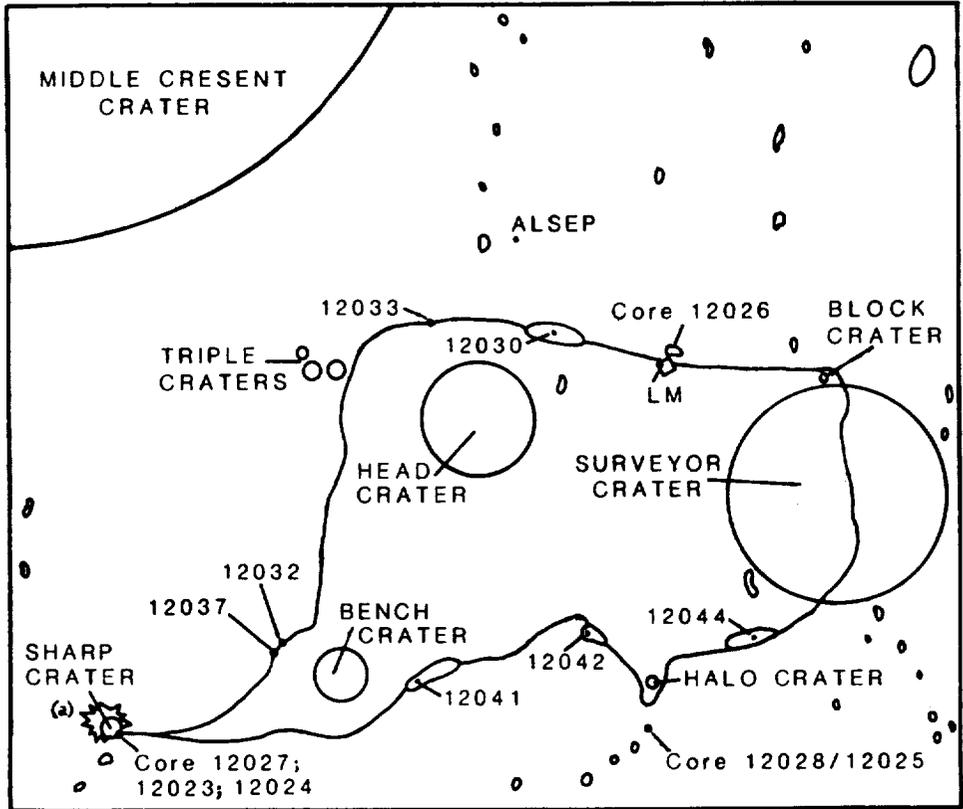
Post-sampling, boot prints,  
the cord from the tv  
camera, and scoops from  
sampling can be seen.



Explanation

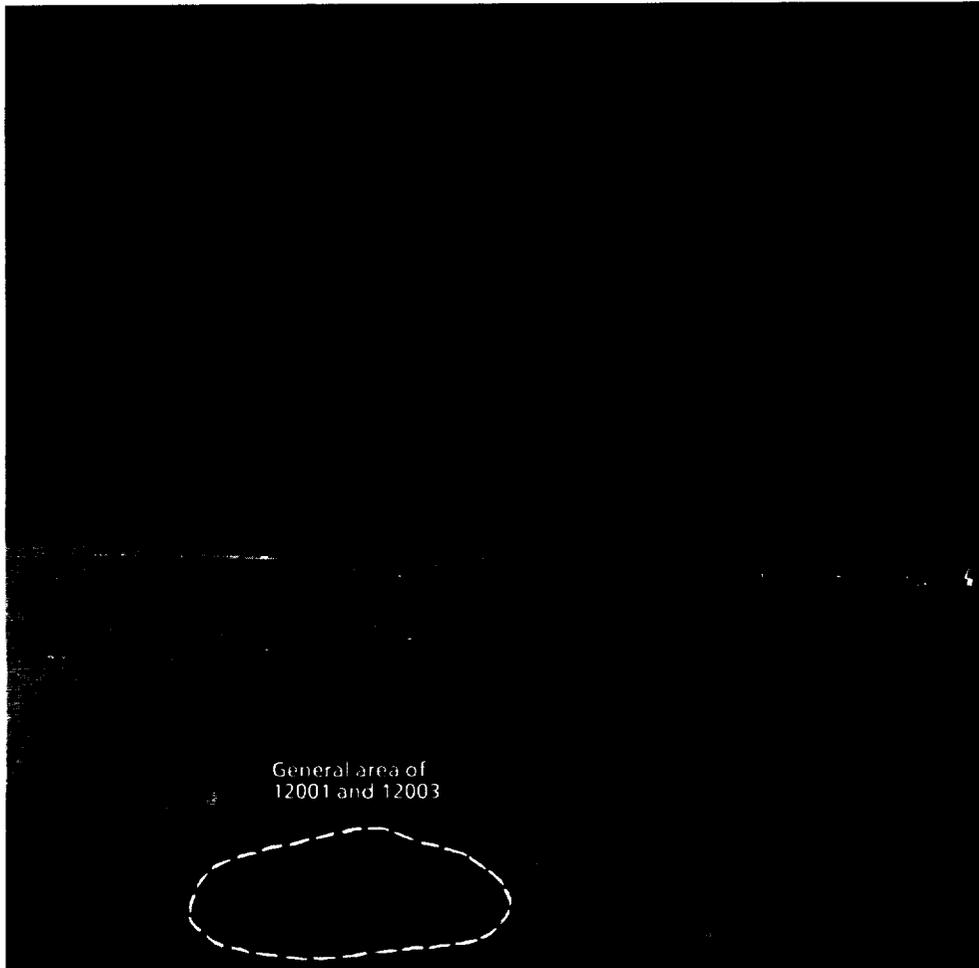
- |       |                              |      |                     |
|-------|------------------------------|------|---------------------|
| ..... | First EVA Traverse           | ———— | Second EVA Traverse |
| ..... | Both astronauts              | ———— | Both astronauts     |
| ..... | Conrad                       | ———— | Conrad              |
| ..... | Bean                         | ———— | Bean                |
| △     | Photographic control station |      |                     |
- B12054 Sample locality. Number refers to sample number assigned in Lunar Receiving Laboratory. Letters refer to rock type. Queried where sample identification is uncertain. Rock types are as follows:
- A - fine-grained igneous rock
  - B - medium-grained igneous rock
  - AB - intermediate, fine-to-medium-grained igneous rock
  - C - breccia
  - D - fine-grained material
- Sample locality. Circle indicates locality not accurately determined. Dot shows best estimate of location
- [3] Number of rocks collected in sample locality
- ☀ diagrammatic sketch of fresh ray pattern around Sharp Crater
- ALSEP Apollo lunar surface experiments package
- LESC Lunar environment sample container
- GASC Gas analysis sample container

Map of Apollo 12 landing site  
taken from Apollo 12 Preliminary Science Report.




 diagrammatic sketch of fresh ray pattern around Sharp Crater

**Sample location map for Apollo 12  
 from the Handbook of Lunar Soils.**



12001 Sample Environment

AS12-47-6960

Pre-sampling, ALSEP site  
in the background.

**Soil: 12001**  
 (subsample 12001,7)  
 D.S. McKay PI

**LOCATION COMMENTS:**

12001 is the <1 cm fraction of bulk regolith collected about 30 meters northwest of the LM on the first EVA traverse. Astronaut Conrad saw several beads of pure glass while collecting this sample. Fryxell reports that the fines are weakly coherent; they adhere to rocks and do not slump when the sample holder is tipped 45 degrees.

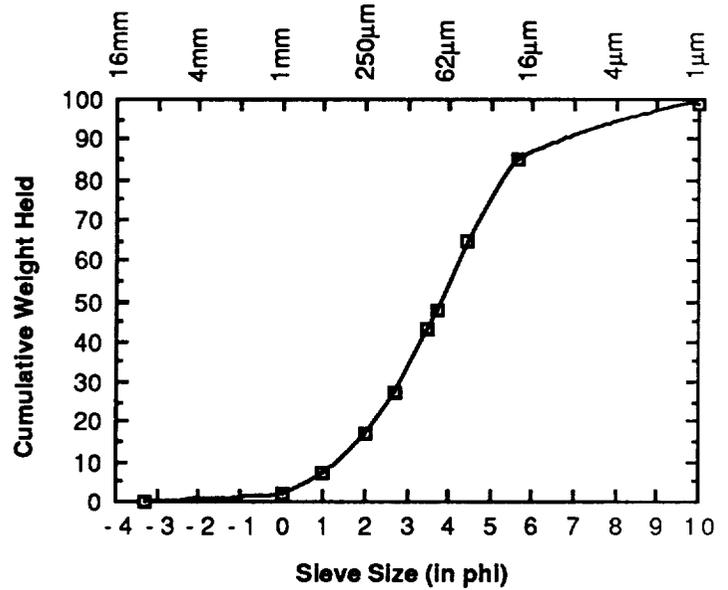
**MATURITY INDEX:**

$I_s/FeO = 56$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	1.69
500.00	5.45
250.00	9.68
150.00	10.76
90.00	15.25
75.00	5.08
45.00	16.47
20.00	20.47
1.00	14.14

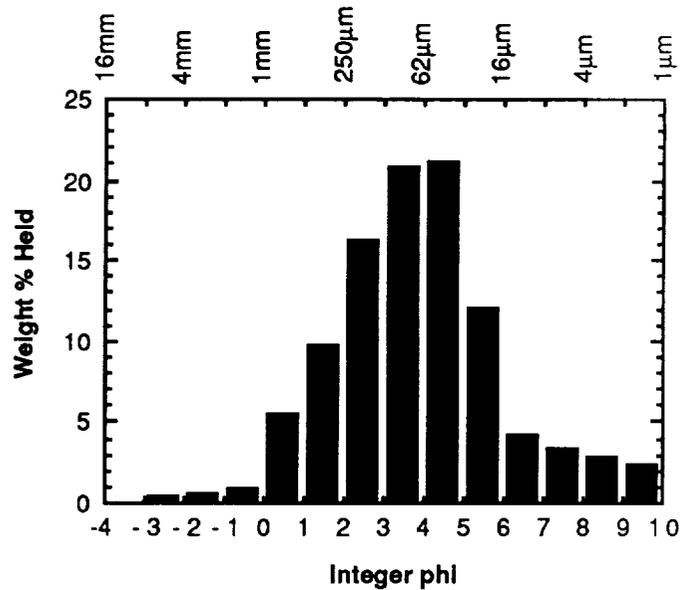
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.77
Median:	3.84
Mode:	4.50
Sorting:	2.08
Skewness:	0.06
Kurtosis:	1.31

**SIZE DISTRIBUTION HISTOGRAM**



**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.67
16	1.93
25	2.58
50	3.84
75	5.01
84	5.53
95	8.44

**Soil: 12001**  
(subsample 12001,62)  
E.A. King PI

**LOCATION COMMENTS:**

12001 is the <1 cm fraction of bulk regolith collected about 30 meters northwest of the LM on the first EVA traverse. Astronaut Conrad saw several beads of pure glass while collecting this sample. Fryxell reports that the fines are weakly coherent; they adhere to rocks and do not slump when the sample holder is tipped 45 degrees.

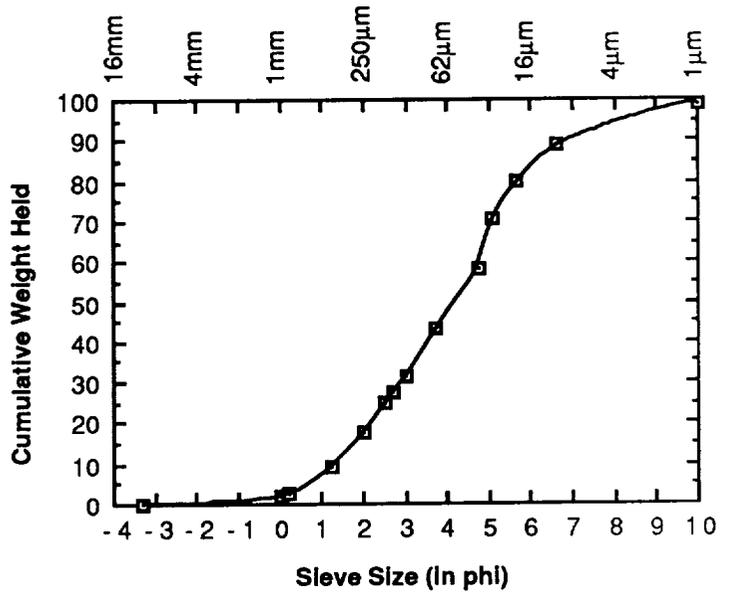
**MATURITY INDEX:**

$I_s/FeO = 56$  (submature)

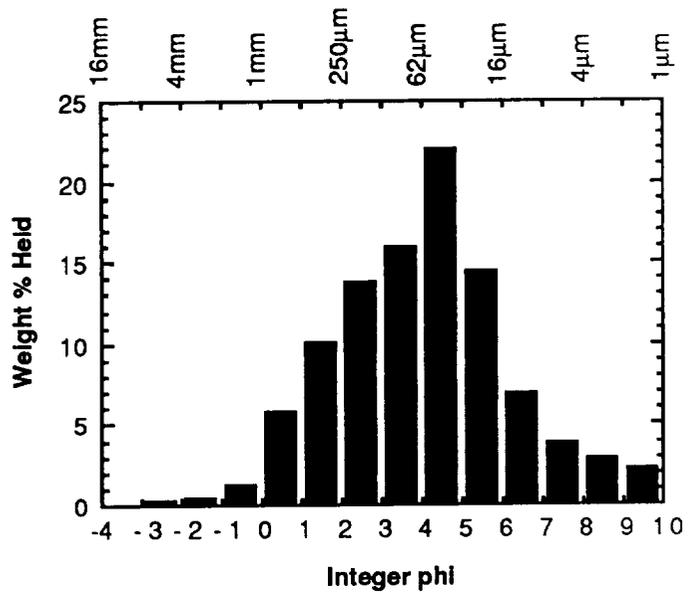
**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
1000.00	1.69
841.00	0.83
420.00	6.93
250.00	7.95
177.00	7.24
150.00	3.06
125.00	3.49
74.00	12.19
37.00	15.02
30.00	12.47
20.00	8.61
10.00	9.15
1.00	10.38

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**

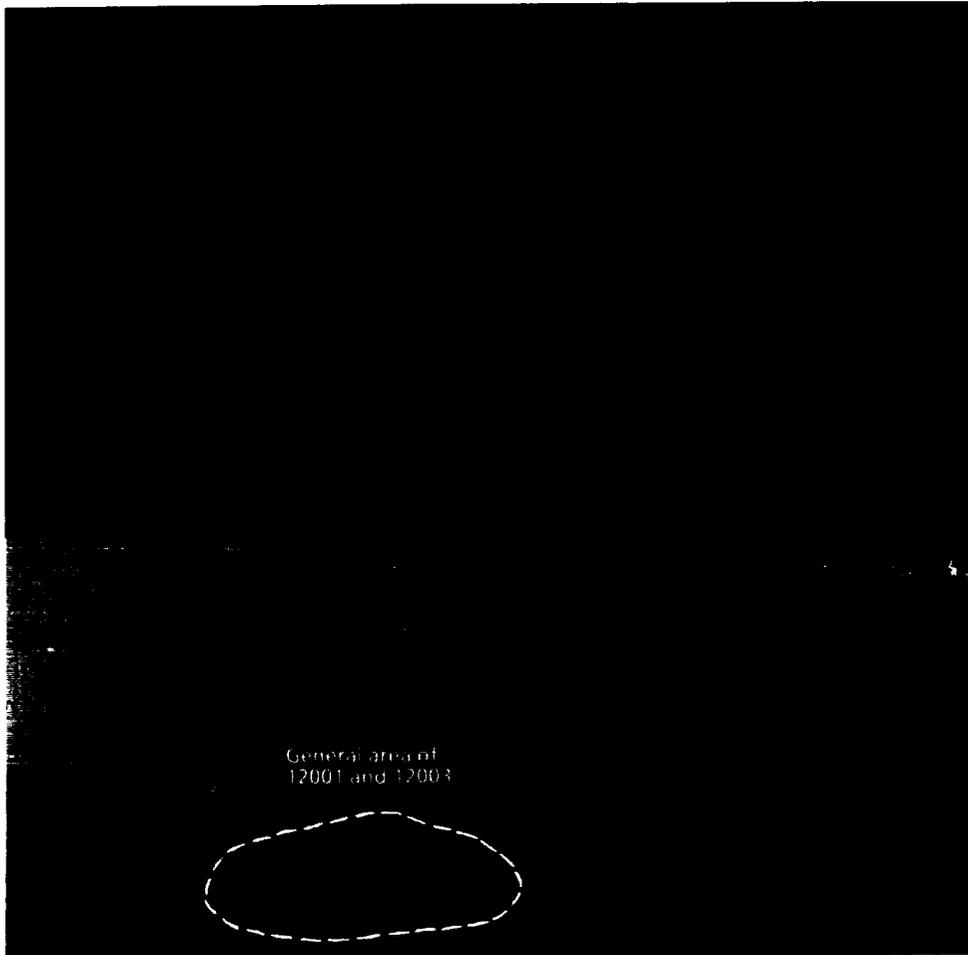


**GRAPHIC AND MOMENT MEASURES**

Mean:	4.05
Median:	4.20
Mode:	4.50
Sorting:	2.21
Skewness:	-0.01
Kurtosis:	1.14

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	0.69
16	1.88
25	2.53
50	4.20
75	5.30
84	6.06
95	8.40



12003 Sample Environment

AS12-47-6960

Pre-sampling, ALSEP site  
in the background.

**Soil: 12003**  
(subsample 12003,11)  
D.S. McKay PI

**LOCATION COMMENTS:**

12003 is the coarse (>1cm) split from 12001, along with friable material from the bottom of the sample box. This was collected about 30 meters northwest of the LM on EVA-1. These broken up fines from larger rocks do not make a statistical sample.

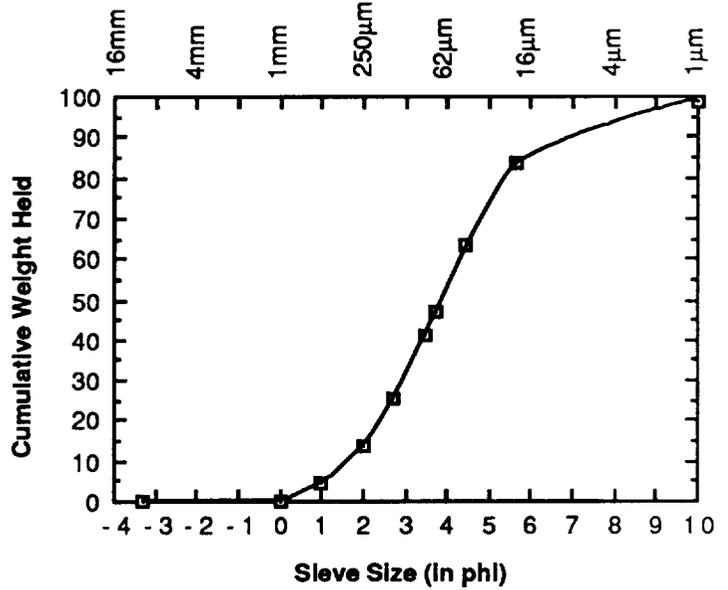
**MATURITY INDEX:**

$I_p/FeO = 57$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	4.63
250.00	9.23
150.00	11.93
90.00	15.54
75.00	5.79
45.00	16.07
20.00	20.22
1.00	15.59

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



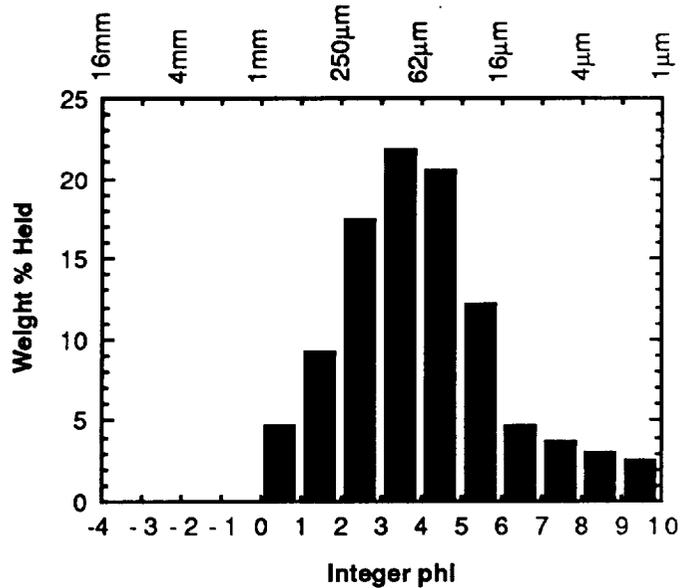
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.93
Median:	3.87
Mode:	3.50
Sorting:	2.03
Skewness:	0.15
Kurtosis:	1.29

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	1.06
16	2.16
25	2.69
50	3.87
75	5.08
84	5.75
95	8.56

**SIZE DISTRIBUTION HISTOGRAM**





12023 Sample Environment

AS12-48-7067

Post-sampling, Sharp  
crater in background, core  
12027 nearby.

**Soil: 12023**  
(subsample 12023,25)  
D.S. McKay PI

**LOCATION COMMENTS:**

Core 12027 and trench samples 12023 (collected at a depth of 20 cm) and 12024 (collected from the surface) were collected from the east rim of the 20 meter Sharp crater. The rim material is softer and lighter in color than the surrounding material.

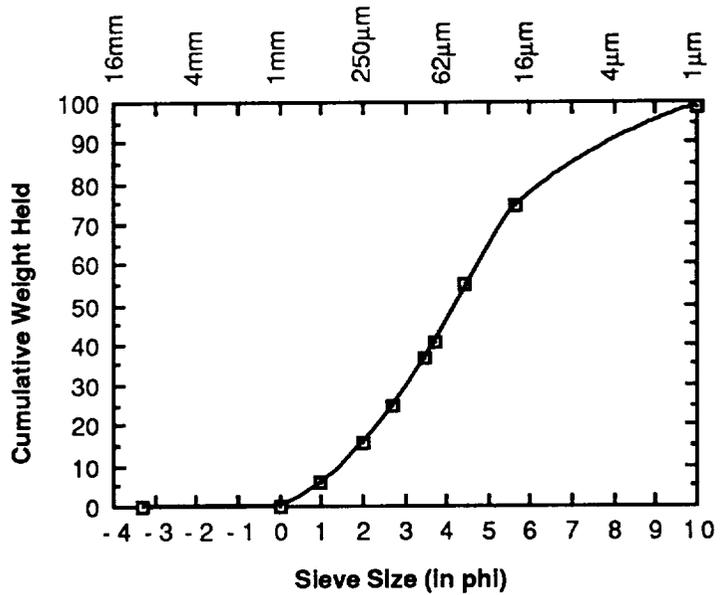
**MATURITY INDEX:**

$I_p/FeO = 60$  (mature)

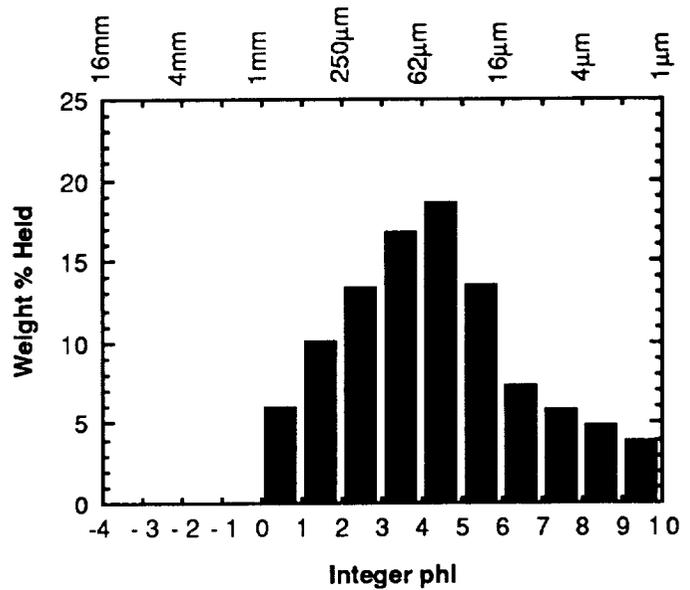
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	5.83
250.00	9.92
150.00	9.39
90.00	11.38
75.00	4.31
45.00	13.88
20.00	19.84
1.00	24.46

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**

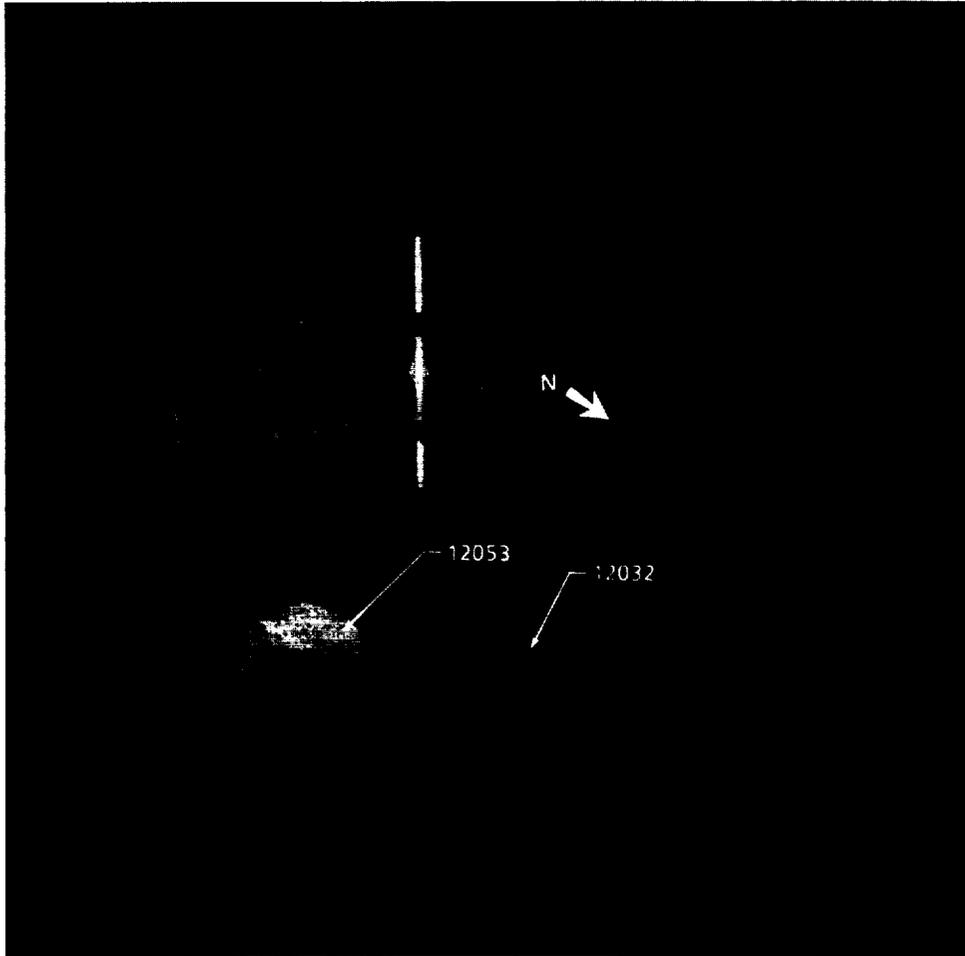


**GRAPHIC AND MOMENT MEASURES**

Mean:	4.39
Median:	4.22
Mode:	4.50
Sorting:	2.46
Skewness:	0.14
Kurtosis:	1.13

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.88
16	2.02
25	2.73
50	4.22
75	5.69
84	6.93
95	9.04



12032 Sample Environment

AS12-48-7063

Pre-sampling. Bench crater  
just behind photographer.

**Soil: 12032**  
(subsample 12032,40)  
D.S. McKay PI

**LOCATION COMMENTS:**

Surface soil 12032, along with several rocks were collected from the north rim of Bench crater. It includes some light gray material from just below the surface. Soil collected with "potato" rock 12053.

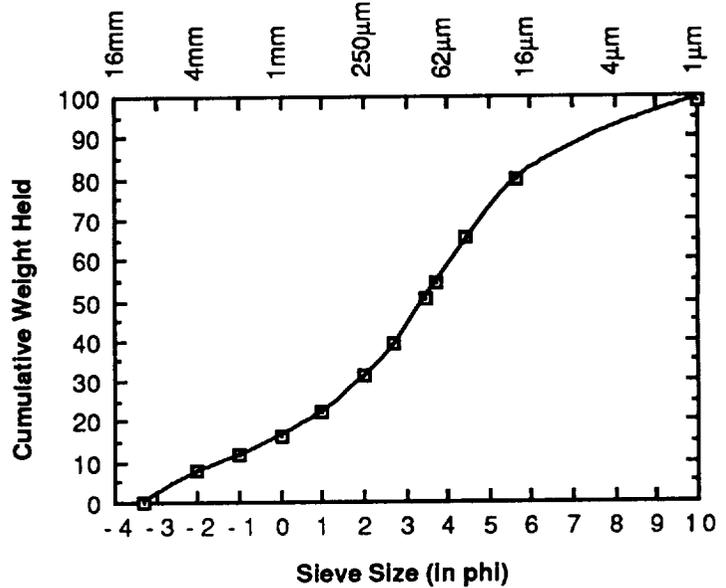
**MATURITY INDEX:**

$I_p/FeO = 12$  (immature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	7.52
2000.00	4.08
1000.00	4.93
500.00	5.89
250.00	8.72
150.00	8.03
90.00	11.40
75.00	3.94
45.00	10.74
20.00	14.76
1.00	18.98

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



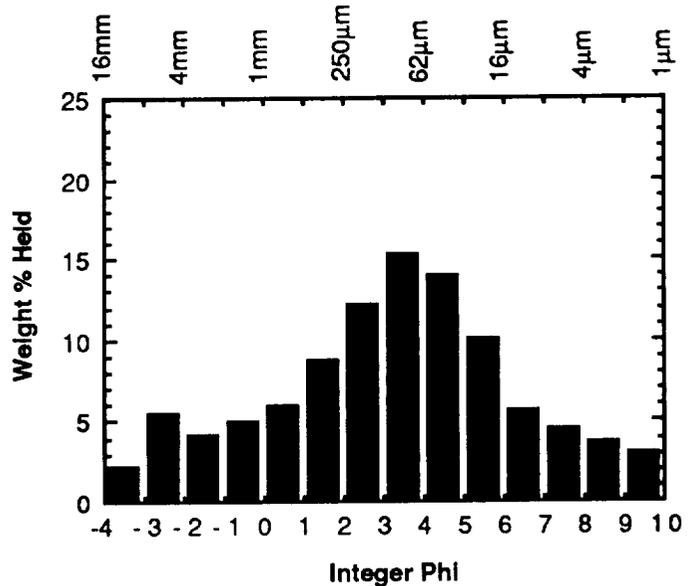
**GRAPHIC AND MOMENT MEASURES**

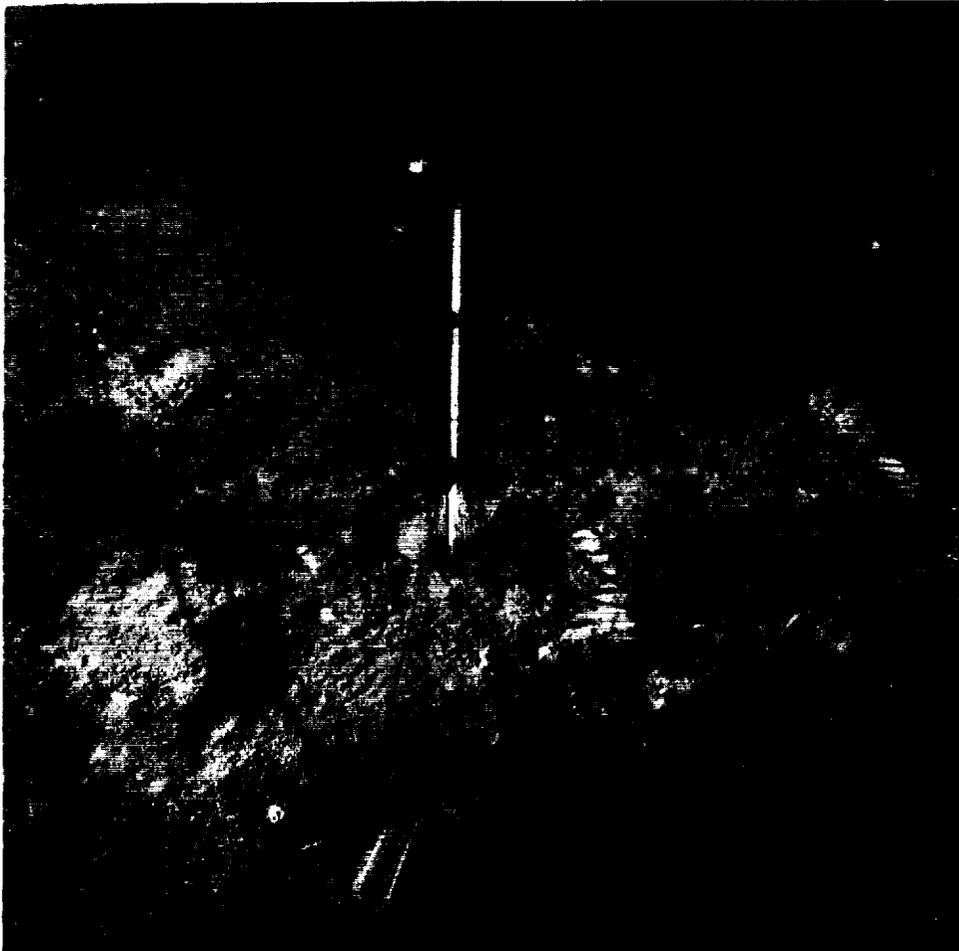
Mean:	3.21
Median:	3.44
Mode:	3.50
Sorting:	3.31
Skewness:	-0.08
Kurtosis:	1.20

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.51
16	-0.10
25	1.33
50	3.44
75	5.20
84	6.28
95	8.79

**SIZE DISTRIBUTION HISTOGRAM**





12033 Sample Environment

AS12-49-7191

Pre-sampling. Head crater  
off to the right of the  
picture.

**Soil: 12033**  
(subsample 12033,464)  
D.S. McKay PI

**LOCATION COMMENTS:**

Trench sample 12033 was collected 15 cm below the surface, 15 meters from the northwest rim of Head Crater near 12031. The trench bottom is lighter in color than the surface material. Astronauts notice more large blocks on the west side of bench crater than on the east.

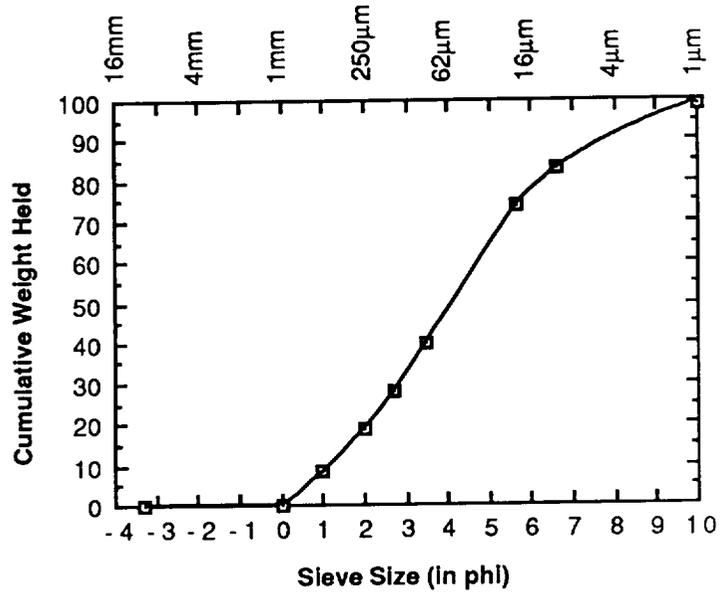
**MATURITY INDEX:**

$I_3/FeO = 14.6$  (immature)

**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
1000.00	0.00
500.00	8.53
250.00	10.67
150.00	9.15
90.00	11.44
20.00	34.24
10.00	9.04
1.00	15.93

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



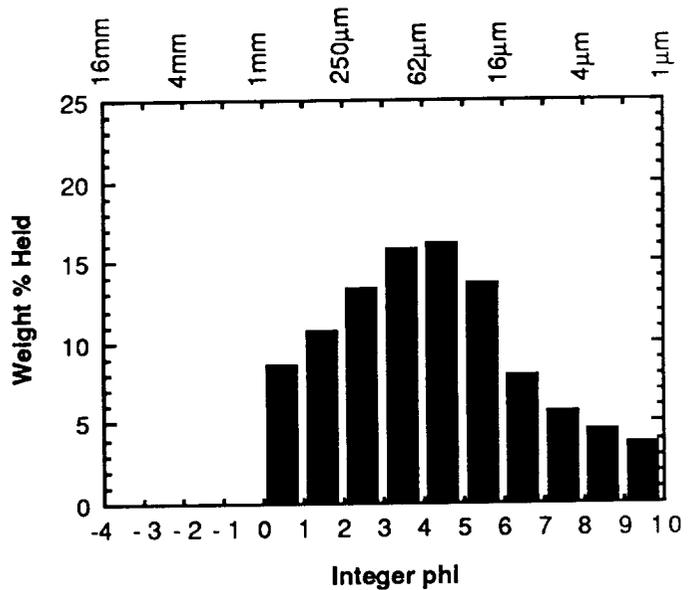
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.21
Median:	4.12
Mode:	4.50
Sorting:	2.53
Skewness:	0.10
Kurtosis:	1.05

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	0.62
16	1.72
25	2.48
50	4.12
75	5.74
84	6.78
95	8.94

**SIZE DISTRIBUTION HISTOGRAM**



# Soil: 12033

(subsample 12033,37)  
E.A. King PI

**LOCATION COMMENTS:**

Trench sample 12033 was collected 15 cm below the surface 15 m from the NW rim of Head crater near 12031. The trench bottom was lighter in color than the surface material. Astronauts notice more large blocks on the west side of Bench crater than the east.

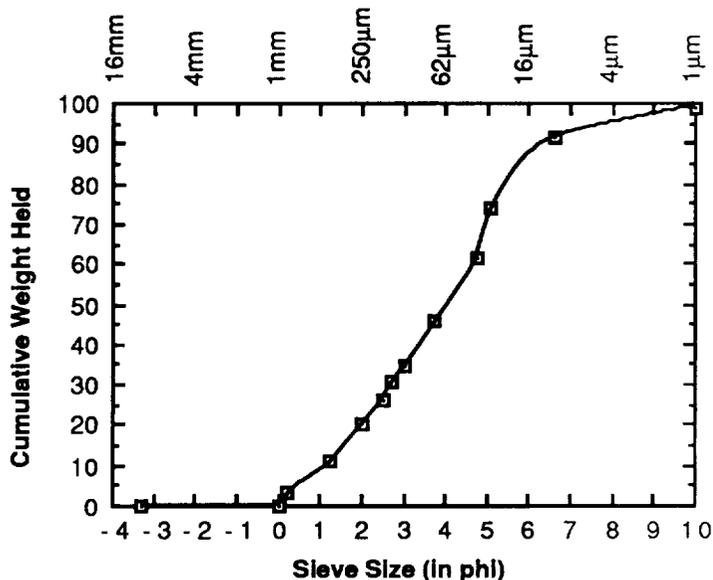
**MATURITY INDEX:**

$I_s/FeO = 14.6$  (immature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
841.00	3.50
420.00	7.41
250.00	9.06
177.00	6.18
150.00	4.73
125.00	3.50
74.00	11.32
37.00	15.44
30.00	12.97
10.00	17.70
1.00	7.21

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



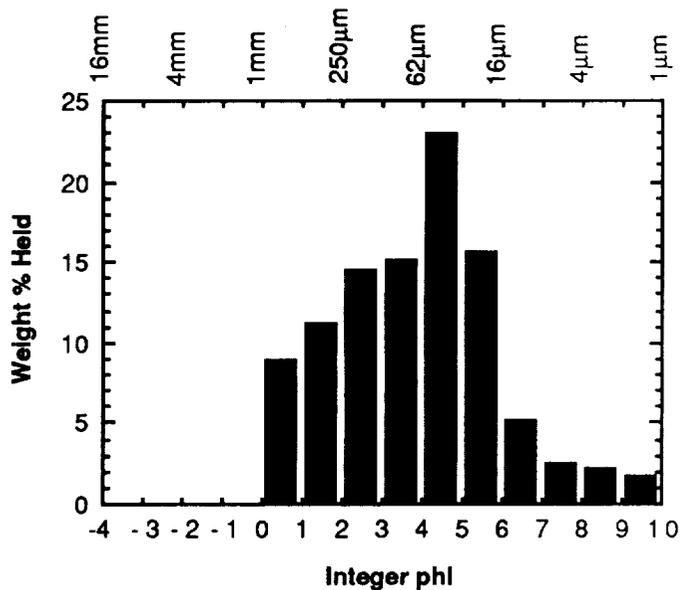
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.78
Median:	4.04
Mode:	4.50
Sorting:	2.12
Skewness:	-0.08
Kurtosis:	1.14

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.43
16	1.68
25	2.41
50	4.04
75	5.11
84	5.63
95	7.90

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 12033**  
(subsample 12033,45)  
D.S. McKay PI

**LOCATION COMMENTS:**

Trench sample 12033 was collected 15 cm below the surface, 15 meters from the northwest rim of Head Crater near 12031. The trench bottom is lighter in color than the surface material. Astronauts notice more large blocks on the west side of bench crater than on the east.

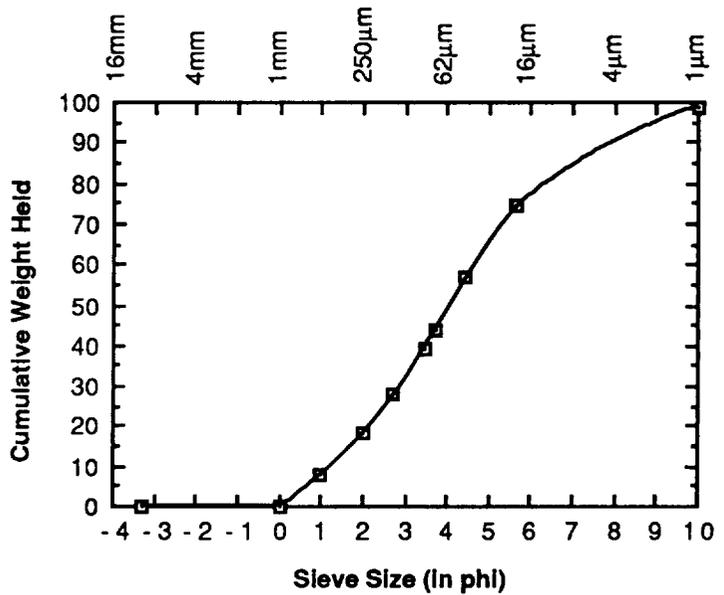
**MATURITY INDEX:**

$I_g/FeO = 14.6$  (immature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	7.98
250.00	10.30
150.00	9.50
90.00	11.76
75.00	4.57
45.00	13.05
20.00	17.04
1.00	24.80

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



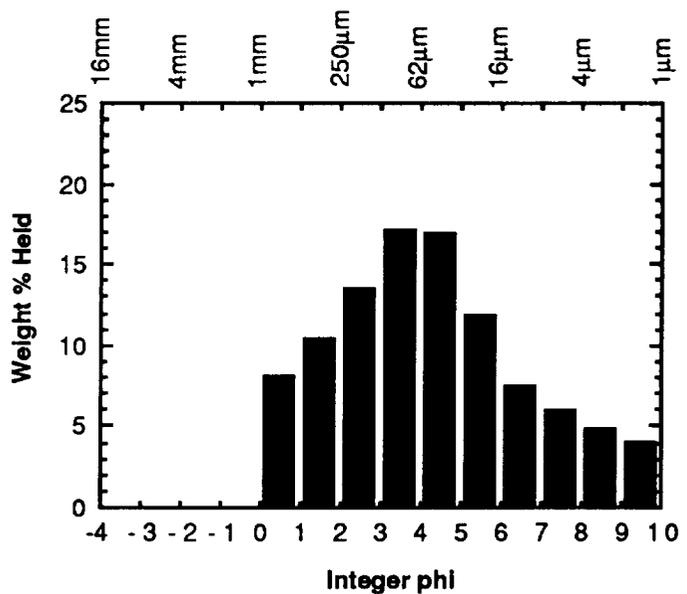
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.28
Median:	4.07
Mode:	3.50
Sorting:	2.57
Skewness:	0.16
Kurtosis:	1.08

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.66
16	1.80
25	2.54
50	4.07
75	5.73
84	6.98
95	9.06

**SIZE DISTRIBUTION HISTOGRAM**





12037 Sample Environment

AS12-48-7064

Pre-sampling.

**Soil: 12037**  
(subsample 12037,32)  
E.A. King PI

**LOCATION COMMENTS:**

Soil sample in the same sample bag as 12036, a friable basalt. Both were collected near the site of 12035 on the NW rim of Bench crater. Because it includes much broken material from the friable basalt, it is not statistically a soil sample.

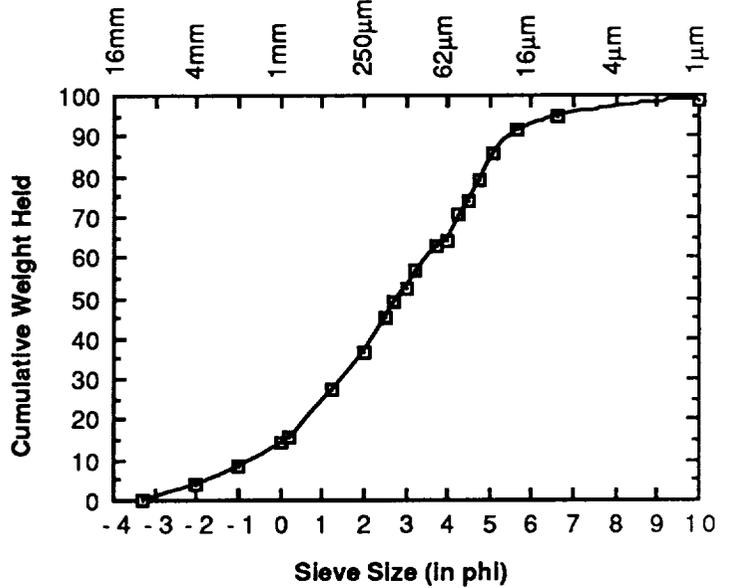
**MATURITY INDEX:**

$I_s/FeO = 21$  (Immature)

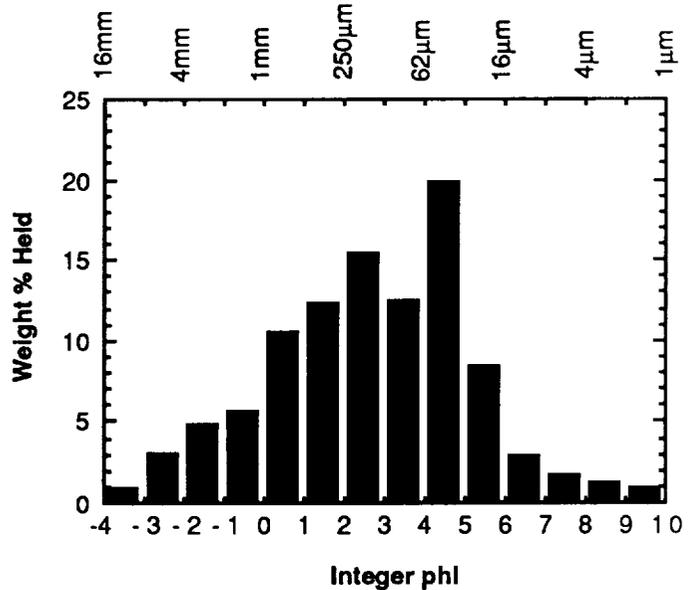
**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	3.79
2000.00	4.67
1000.00	5.59
841.00	1.85
420.00	11.66
250.00	9.26
177.00	8.14
150.00	4.26
125.00	2.96
105.00	4.62
74.00	6.11
64.00	1.30
53.00	6.30
44.00	3.15
37.00	5.37
30.00	6.66
20.00	5.55
10.00	3.51
1.00	4.26

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	2.68
Median:	2.80
Mode:	4.50
Sorting:	2.46
Skewness:	-0.07
Kurtosis:	0.98

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-1.71
16	0.26
25	1.04
50	2.80
75	4.57
84	4.98
95	6.77

**Soil: 12037**  
 (subsample 12037,23)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Soil sample in the same sample bag as 12036, a friable basalt. Both were collected near the site of 12035 on the NW rim of Bench crater. Because it includes much broken material from the friable basalt, it is not statistically a soil sample.

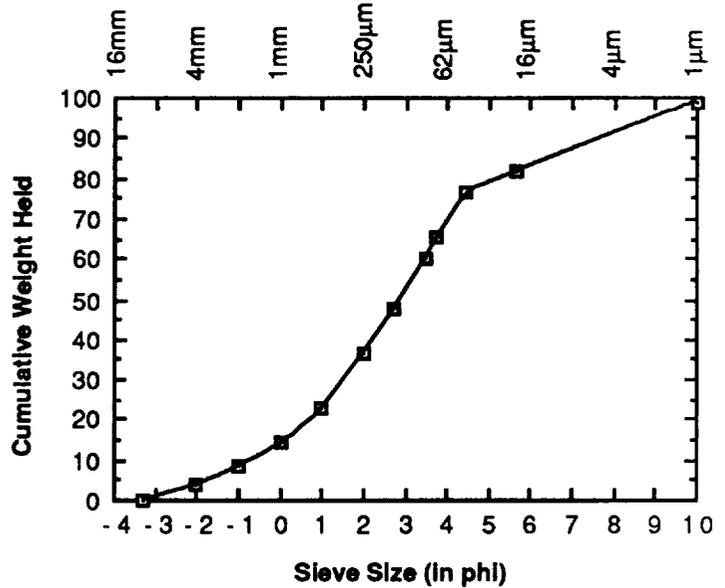
**MATURITY INDEX:**

$I_p/FeO = 21$  (Immature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	3.79
2000.00	4.67
1000.00	5.59
500.00	8.81
250.00	13.79
150.00	11.29
90.00	12.36
75.00	4.88
45.00	11.39
20.00	4.97
1.00	17.44

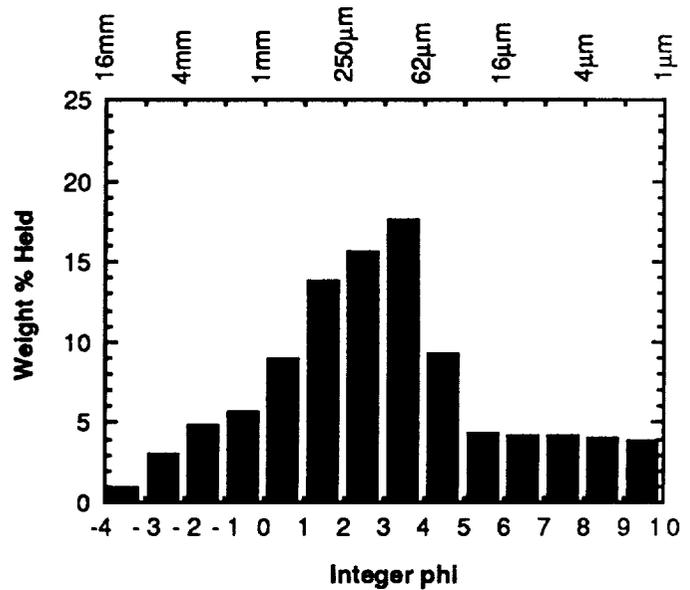
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.12
Median:	2.86
Mode:	3.50
Sorting:	3.10
Skewness:	0.14
Kurtosis:	1.39

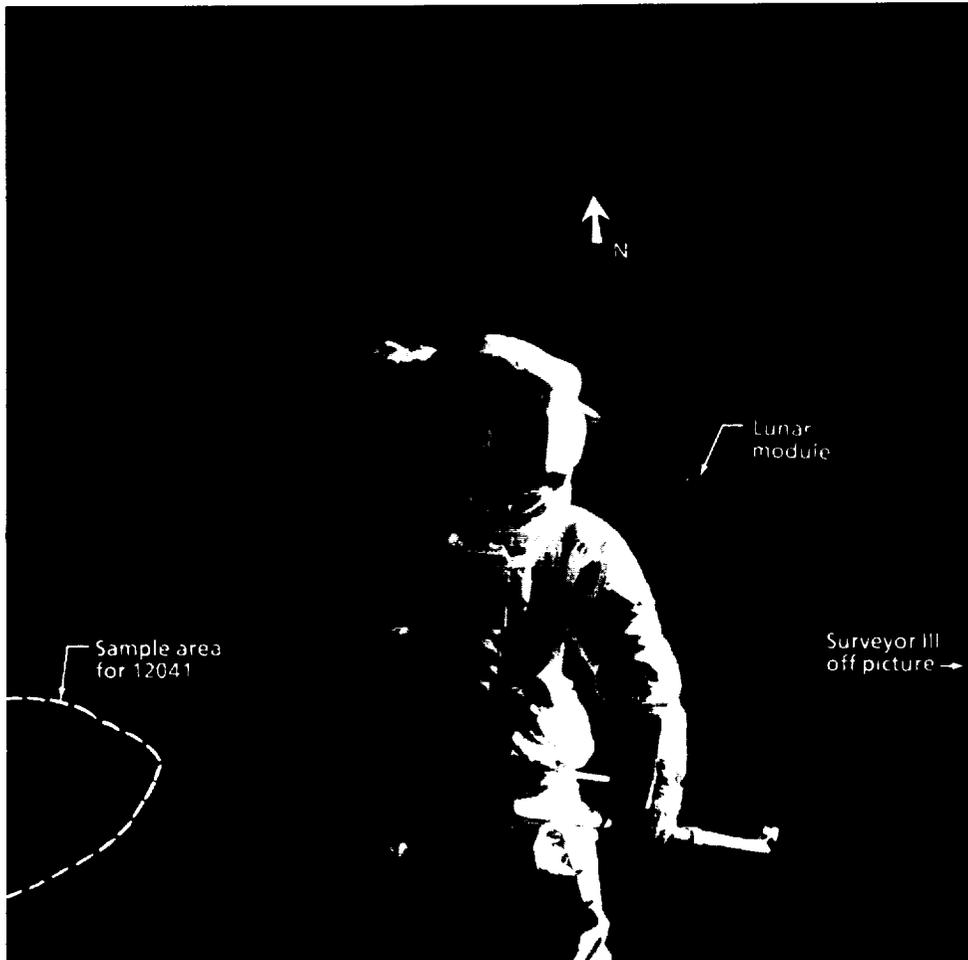
**SIZE DISTRIBUTION HISTOGRAM**



**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.71
16	0.27
25	1.18
50	2.86
75	4.32
84	6.23
95	8.94

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12041 Sample Environment

AS12-48-7071

Pre-sampling.

**Soil: 12041**  
(subsample 12041,23)  
E.A. King PI

**LOCATION COMMENTS:**

Soil sample collected about 50 m east of the rim of Bench crater. Sample consists mostly of fine particles but includes a 6.4 mm glass sphere.

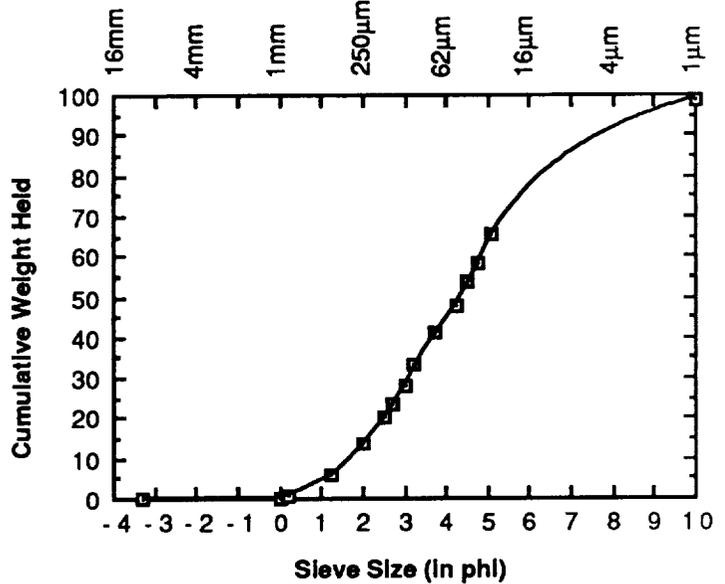
**MATURITY INDEX:**

$I_s/FeO = 63$  (Mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
841.00	0.98
420.00	5.10
250.00	7.64
177.00	6.47
150.00	3.52
125.00	4.12
105.00	5.49
74.00	8.04
53.00	6.66
44.00	5.68
37.00	4.32
30.00	7.26
1.00	33.72

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



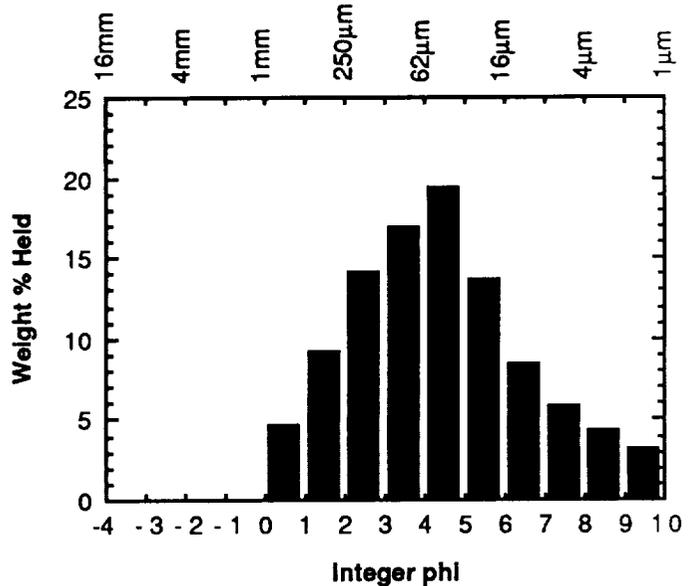
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.53
Median:	4.33
Mode:	4.50
Sorting:	2.43
Skewness:	0.15
Kurtosis:	1.07

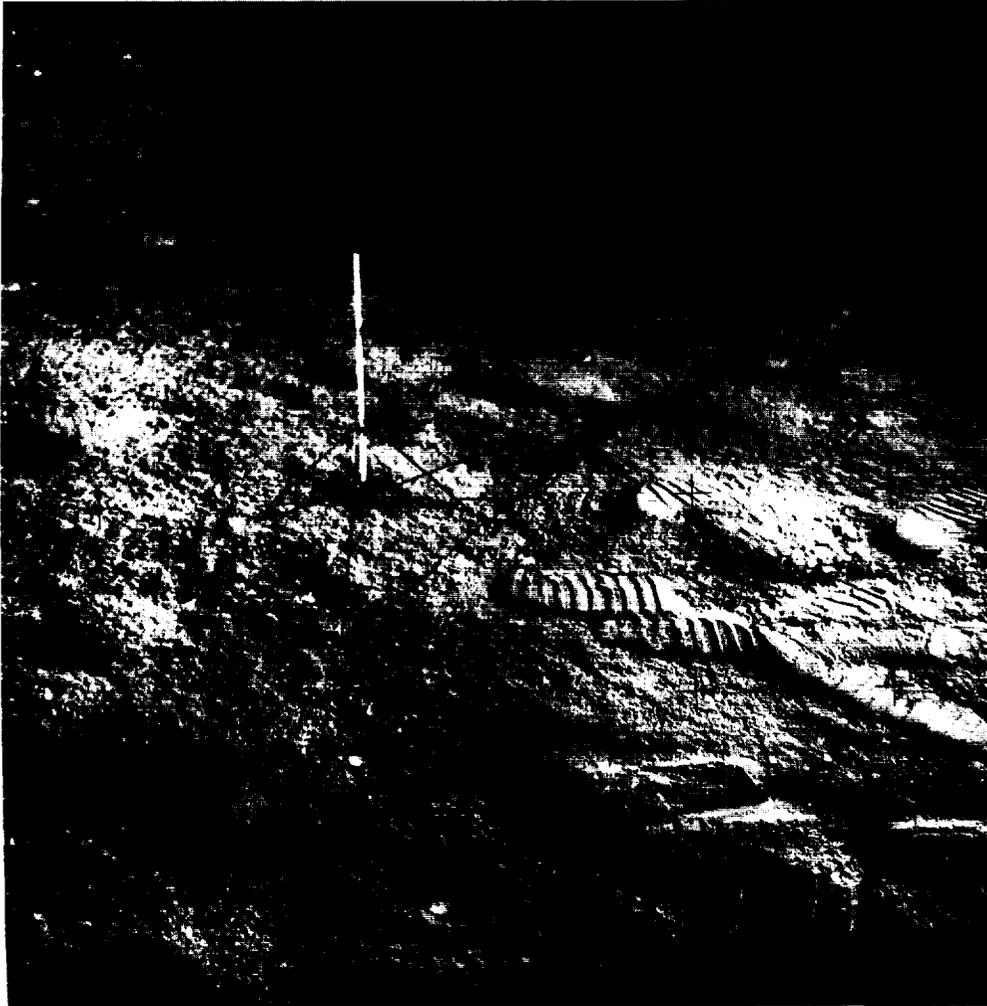
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	1.07
16	2.19
25	2.82
50	4.33
75	5.88
84	7.07
95	9.08

**SIZE DISTRIBUTION HISTOGRAM**



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12042 Sample Environment

AS12-48-7072

**Pre-sampling. Halo crater  
is in the background. Note  
the cohesive nature of the  
soil with boot prints.**

**Soil: 12042**  
 (subsample 12042,24)  
 D.S. McKay PI

**LOCATION COMMENTS:**

12042 is a surface soil taken on the outer flank of Surveyor crater rim, 50 m NW of Halo crater. The sample area is strewn with cohesive clods or aggregates showing a "wrinkled texture." Perhaps this indicates an area of secondary ejecta.

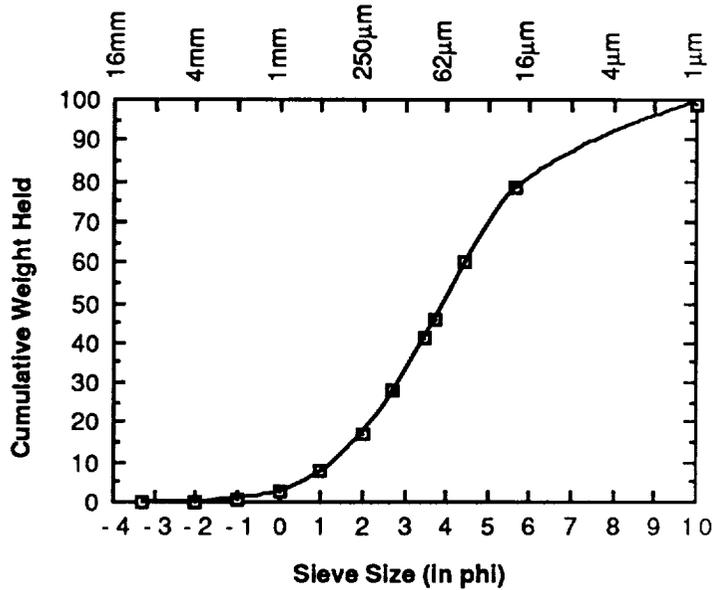
**MATURITY INDEX:**

$I_g/FeO = 61.0$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	0.75
1000.00	1.77
500.00	5.15
250.00	9.62
150.00	10.62
90.00	13.35
75.00	4.81
45.00	14.32
20.00	17.90
1.00	20.71

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



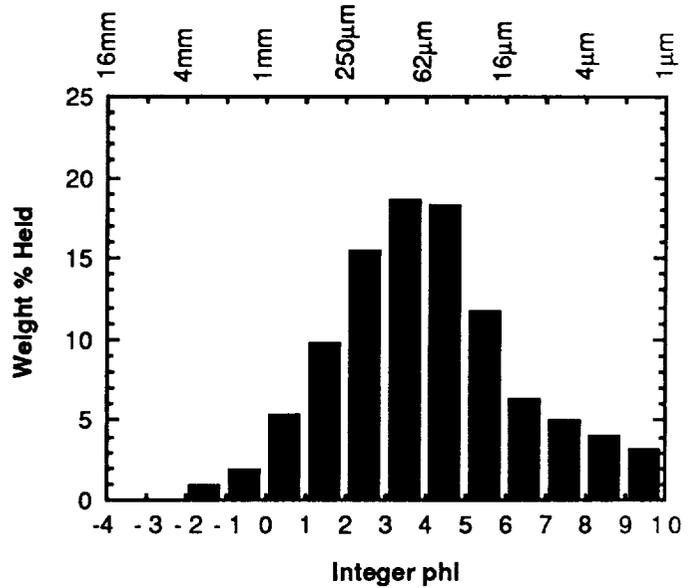
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.11
Median:	3.94
Mode:	3.50
Sorting:	2.42
Skewness:	0.15
Kurtosis:	1.22

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.56
16	1.89
25	2.55
50	3.94
75	5.36
84	6.51
95	8.88

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 12042**  
 (subsample 12042,28)  
 E.A. King PI

**LOCATION COMMENTS:**

12042 is a surface soil taken on the outer flank of Surveyor crater rim, 50 m NW of Halo crater. The sample area is strewn with cohesive clods or aggregates showing a "wrinkled texture." Perhaps this indicates an area of secondary ejecta.

**MATURITY INDEX:**

$I_g/FeO = 61$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	0.75
1000.00	1.77
841.00	1.41
420.00	6.81
250.00	9.62
177.00	8.45
150.00	7.04
125.00	5.17
105.00	7.74
74.00	9.86
64.00	2.35
53.00	1.64
44.00	6.81
37.00	8.22
30.00	4.69
20.00	8.92
10.00	3.52
1.00	4.23

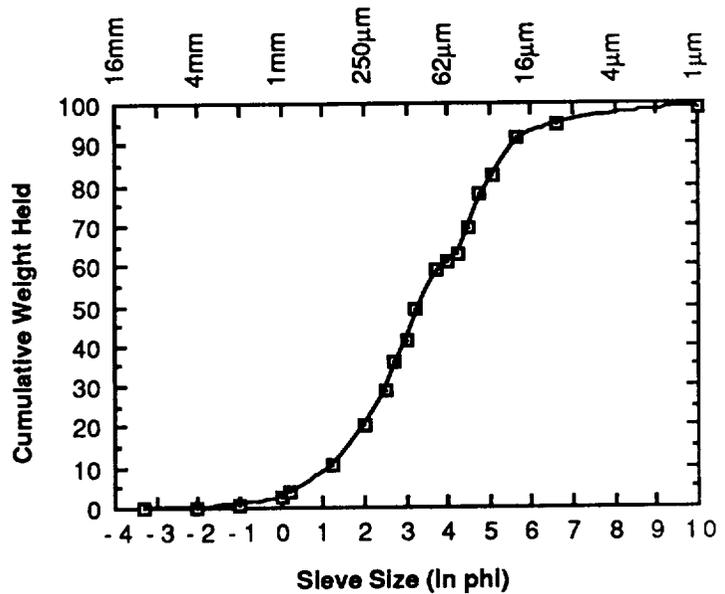
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.39
Median:	3.30
Mode:	2.50
Sorting:	1.83
Skewness:	0.08
Kurtosis:	1.09

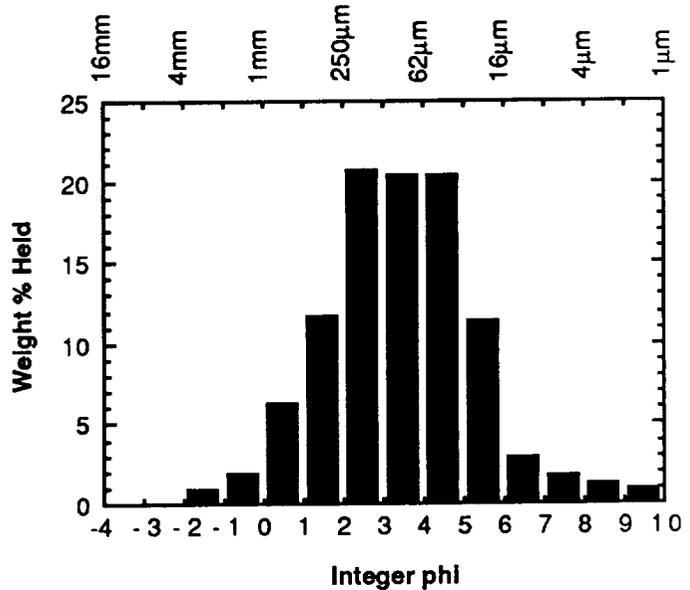
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.43
16	1.70
25	2.30
50	3.30
75	4.67
84	5.17
95	6.75

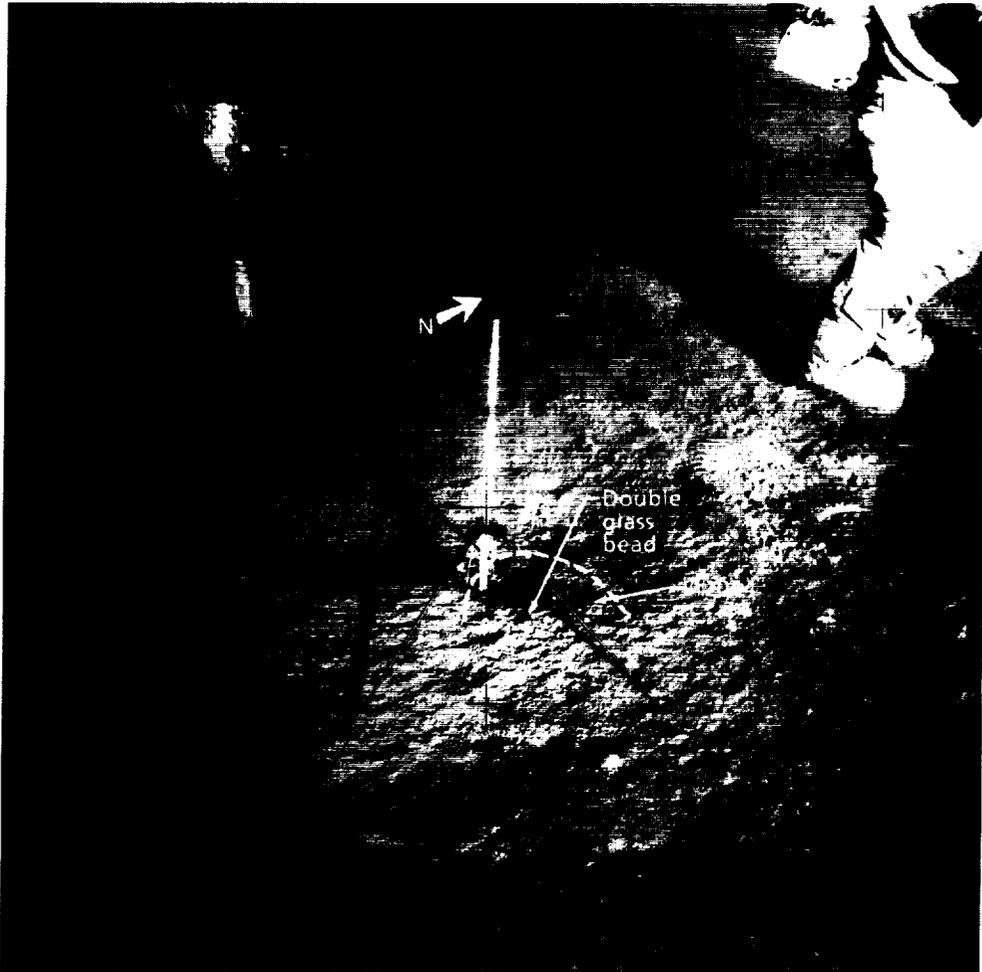
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



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12044 Sample Environment

AS12-48-7082

Pre-sampling. Surveyor  
crater is in the background.

**Soil: 12044**  
 (subsample 12044,12)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Soil 12044 and rock 12043 were collected from the south rim of Surveyor crater. Astronauts observed a prominent double glass bead on the surface.

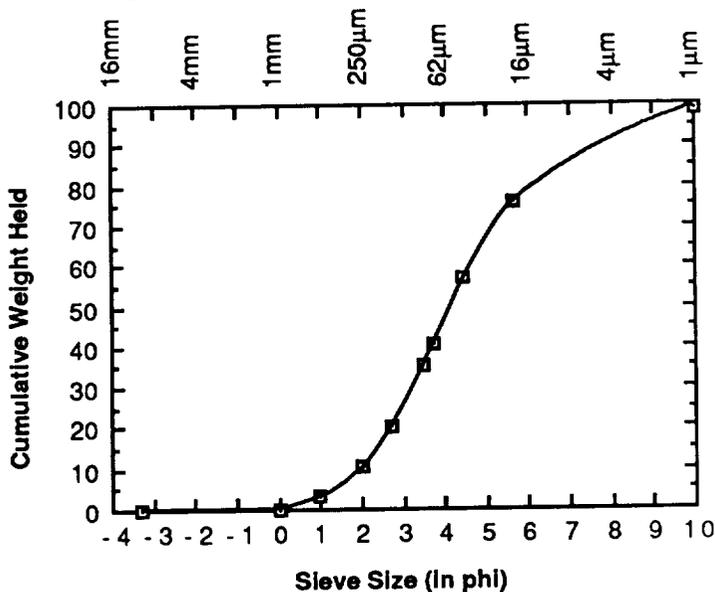
**MATURITY INDEX:**

$I_s/FeO = 57$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	3.09
250.00	7.05
150.00	10.33
90.00	14.79
75.00	5.54
45.00	16.31
20.00	18.63
1.00	23.26

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



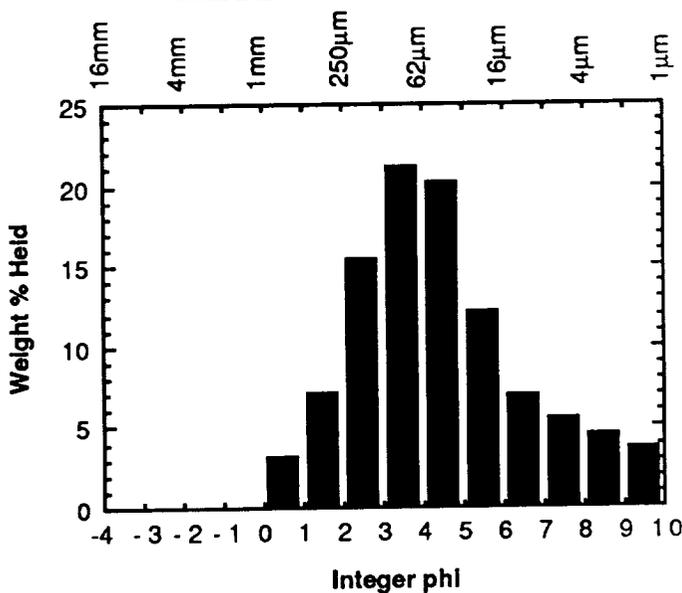
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.47
Median:	4.15
Mode:	3.50
Sorting:	2.25
Skewness:	0.24
Kurtosis:	1.21

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	1.36
16	2.45
25	2.98
50	4.15
75	5.57
84	6.81
95	8.99

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 12044**  
 (subsample 12044,40)  
 E.A. King PI

**LOCATION COMMENTS:**

Soil 12044 and rock 12043 were collected from the south rim of Surveyor crater. Astronauts observed a prominent double glass bead on the surface.

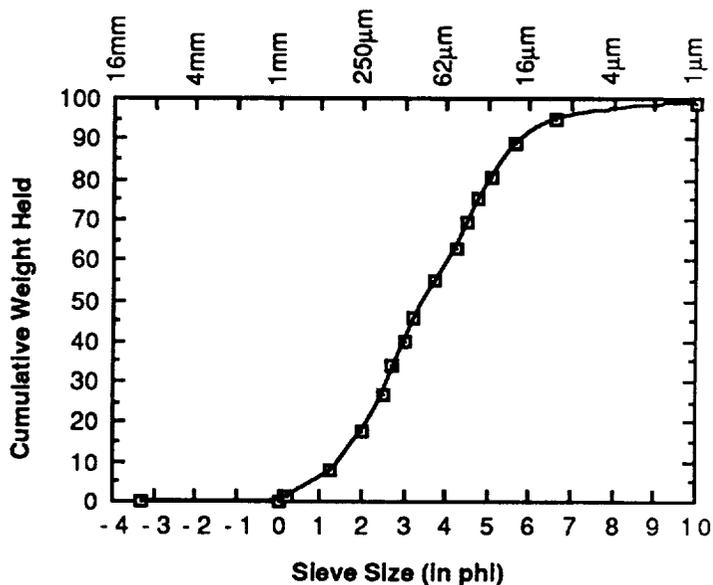
**MATURITY INDEX:**

$I_s/FeO = 57$  (submature)

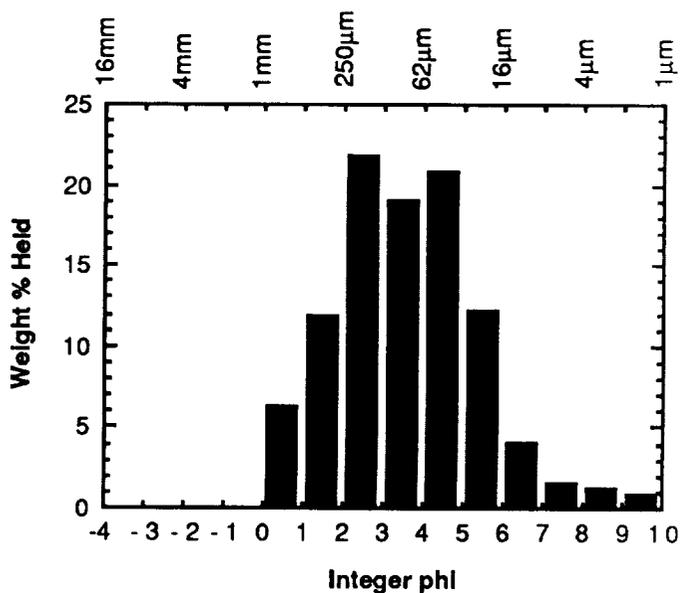
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
841.00	1.52
420.00	6.33
250.00	10.13
177.00	8.86
150.00	7.09
125.00	5.82
105.00	6.33
74.00	8.86
53.00	7.59
44.00	6.58
37.00	6.33
30.00	5.07
20.00	8.61
10.00	5.82
1.00	4.05

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



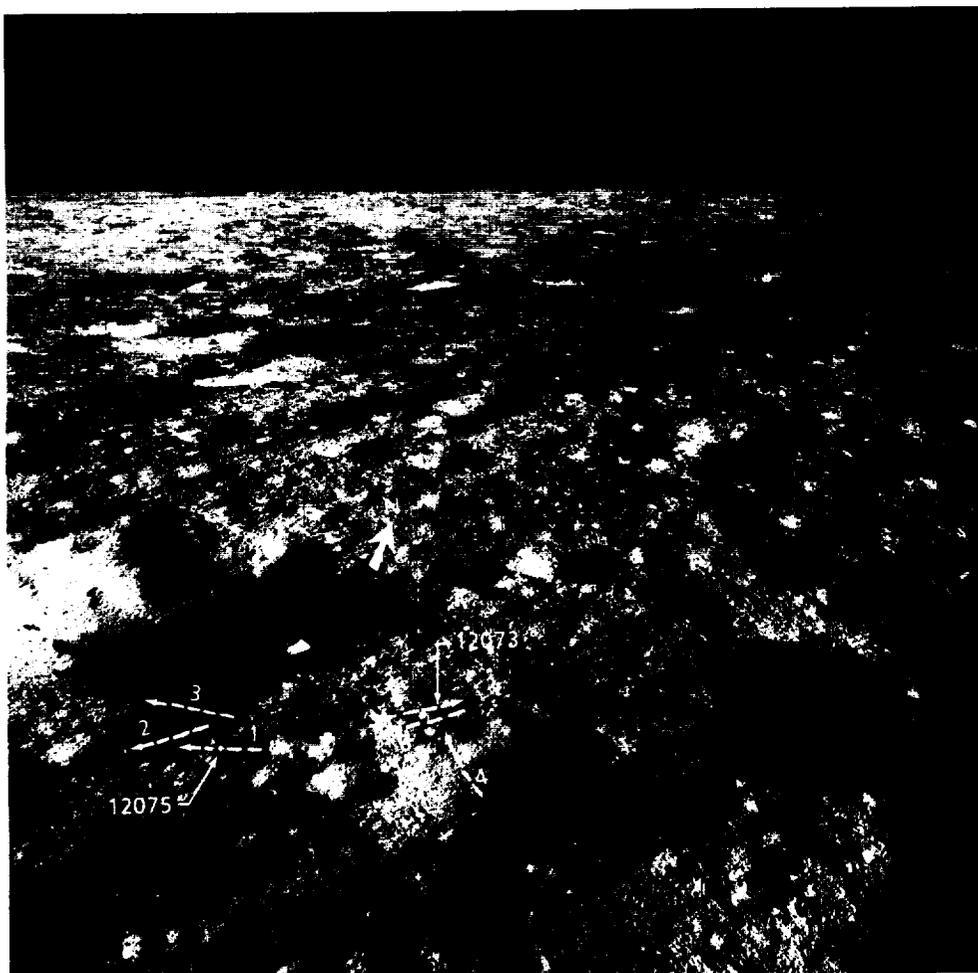
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.54
Median:	3.46
Mode:	2.50
Sorting:	1.74
Skewness:	0.08
Kurtosis:	1.03

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.82
16	1.87
25	2.41
50	3.46
75	4.74
84	5.28
95	6.67

ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



12070 Sample Environment

AS12-48-7031

Pre-sampling. Photo was  
taken from inside the lunar  
module.

Soil: 12070  
(subsample 12070,104)  
D.S. McKay PI

LOCATION COMMENTS:

The contingency sample: six scoops of soil taken from the rim of a 6 m crater about 15 m NW of the LM.

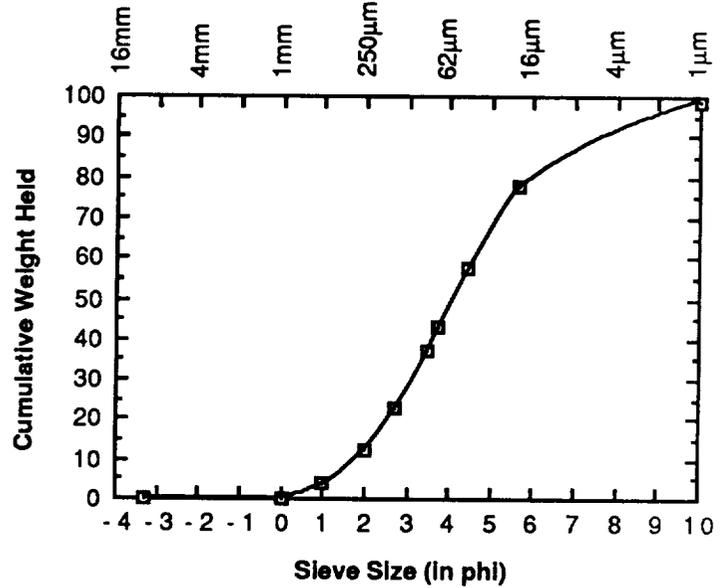
MATURITY INDEX:

$I_g/FeO = 47$  (submature)

TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	3.72
250.00	8.98
150.00	10.44
90.00	13.86
75.00	6.05
45.00	14.76
20.00	19.91
1.00	21.28

CUMULATIVE WEIGHT DISTRIBUTION CURVE



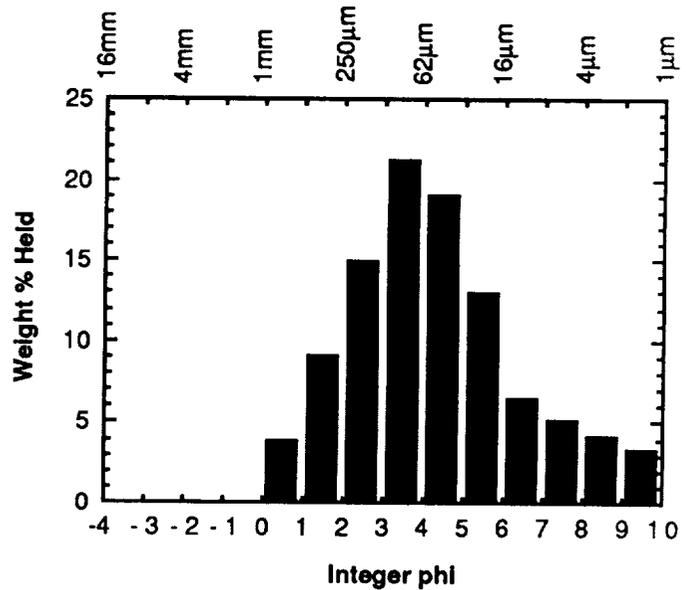
GRAPHIC AND MOMENT MEASURES

Mean:	4.30
Median:	4.07
Mode:	3.50
Sorting:	2.25
Skewness:	0.21
Kurtosis:	1.22

MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.21
16	2.26
25	2.85
50	4.07
75	5.42
84	6.58
95	8.91

SIZE DISTRIBUTION HISTOGRAM



**Soil: 12070**  
 (subsample 12070,166)  
 E.A. King PI

**LOCATION COMMENTS:**

The contingency sample: six scoops of soil taken from the rim of a 6 m crater about 15 m NW of the LM.

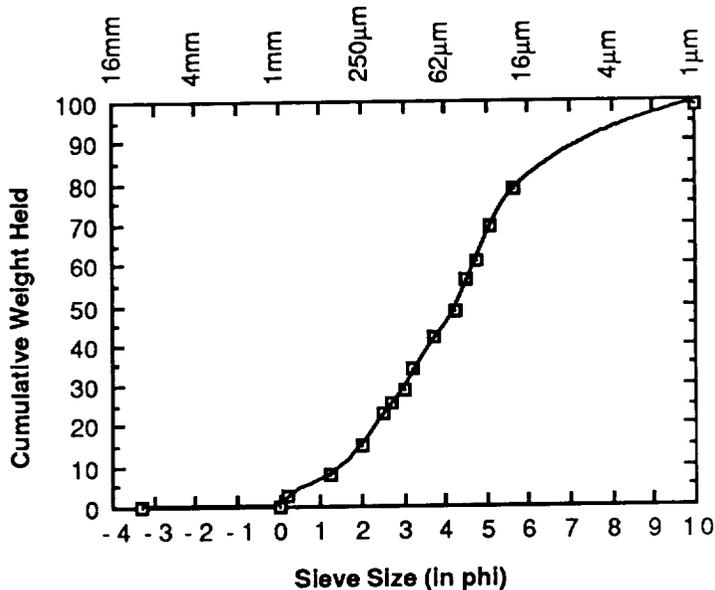
**MATURITY INDEX:**

$I_p/FeO = 47$  (submature)

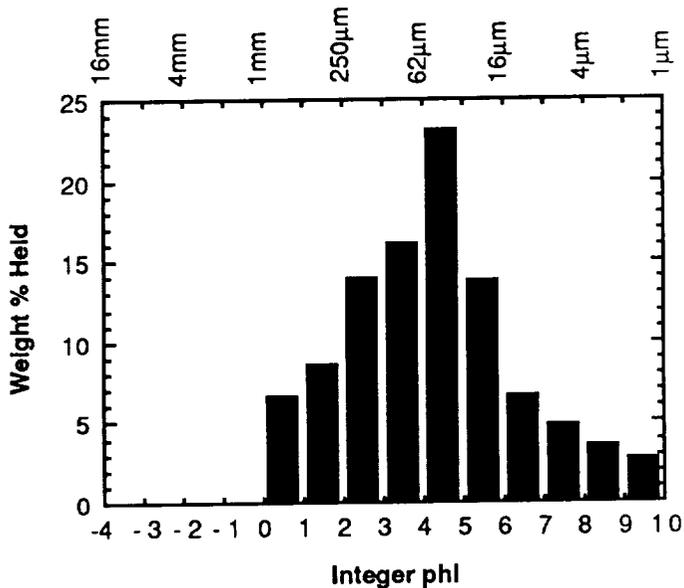
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
841.00	2.77
420.00	5.15
250.00	7.13
177.00	7.52
150.00	2.77
125.00	3.56
105.00	4.95
74.00	7.72
53.00	6.53
44.00	8.32
37.00	4.36
30.00	8.51
20.00	9.31
1.00	20.39

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**

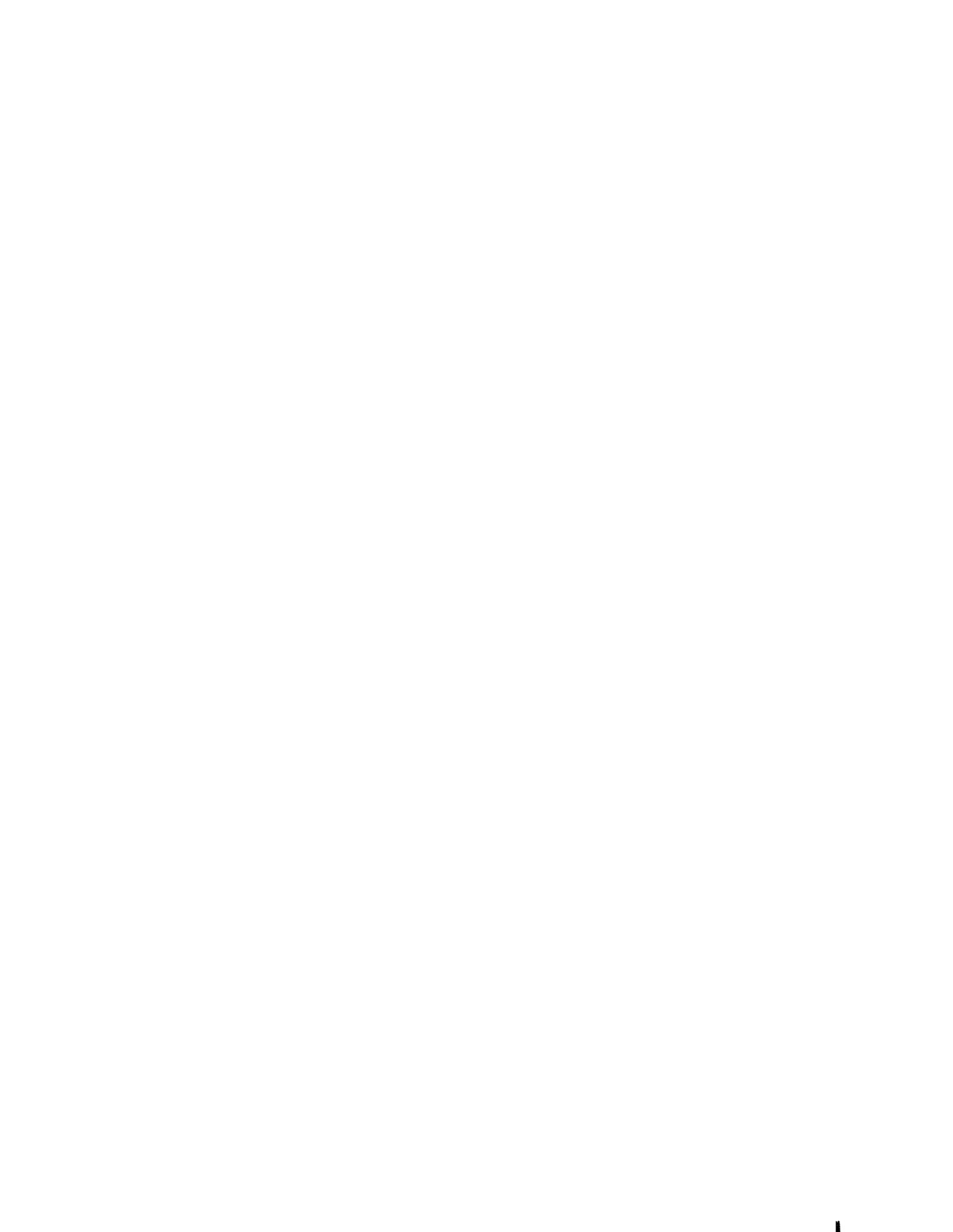


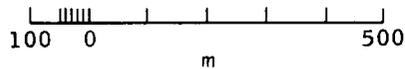
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.26
Median:	4.32
Mode:	4.50
Sorting:	2.30
Skewness:	0.03
Kurtosis:	1.25

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.67
16	2.07
25	2.71
50	4.32
75	5.36
84	6.38
95	8.78





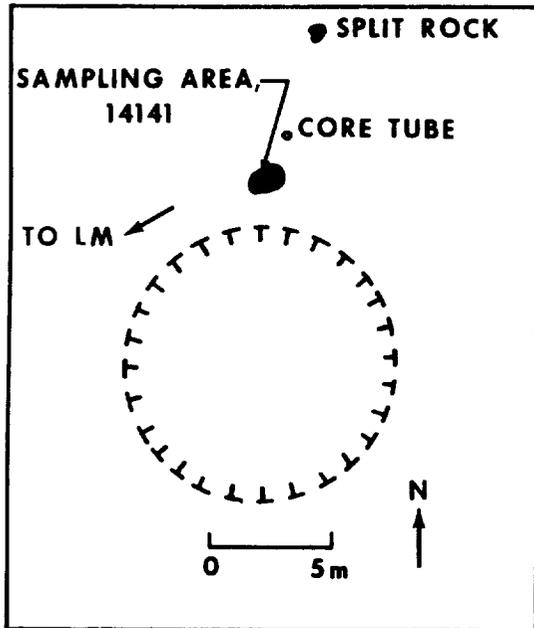
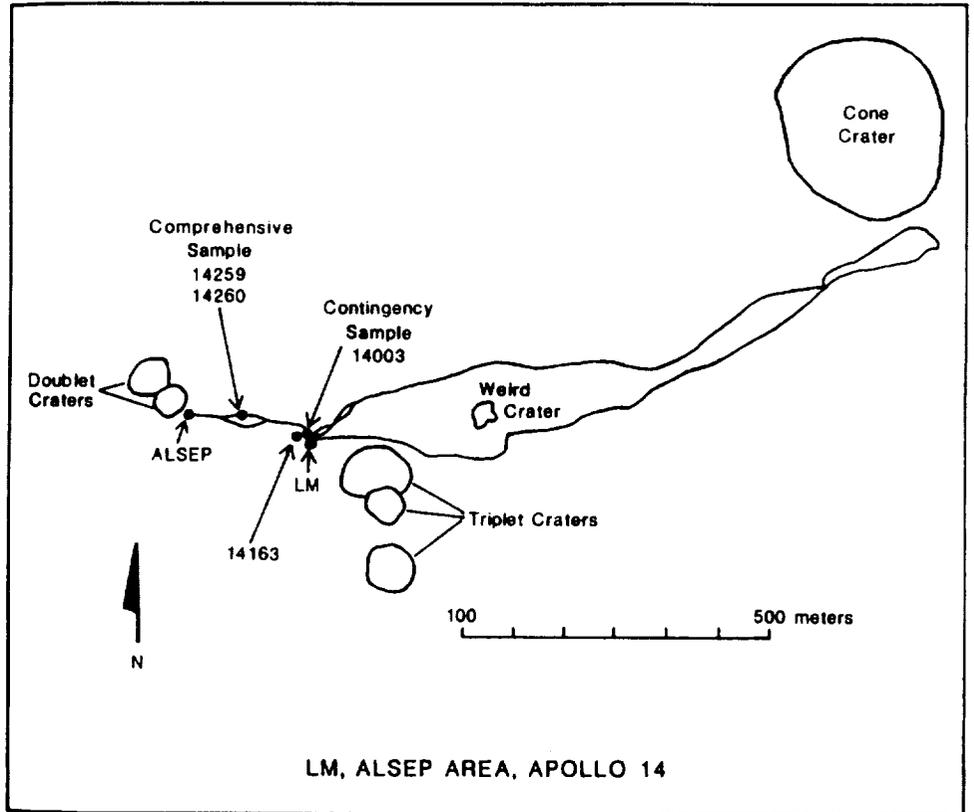
Explanation

Cc <sub>4</sub>	Materials of Cone Crater	Contact
Is	Smooth terrain material of the Fra Mauro Formation	----- Long dashed lines indicate approximate locations, and short dashed lines indicate location is inferred without local evidence.
lfr	Ridge material of the Fra Mauro Formation	Foot of scarp
○	Panorama Station	▲----- The line bounds a small mesa, and the triangles point downslope. The short dashed lines indicate inferred location.
△	Station without panorama	Edge of hill
		----- Long dashed lines indicate approximate locations, and short dashed lines indicate inferred location. The triangles point downslope.
		——— Traverse routes for first and second EVA.

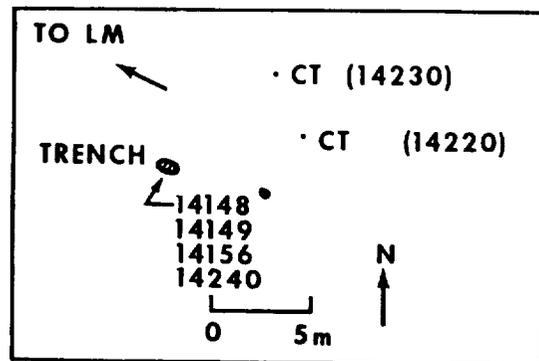
Map of major geologic features of Apollo 14 traverse area from Apollo 14 Preliminary Science Report.

APOLLO 14  
EXPLANATION FOR STATION MAPS

-  Crater
-  Large rock
- LM Lunar module
- CT Core tube



STATION C1, APOLLO 14



STATION G, APOLLO 14

Map of Apollo 14 sample locations from the Handbook of Lunar Soils.

**Soil: 14003**  
(subsample 14003,39)  
W.V. Engelhardt PI

**LOCATION COMMENTS:**

This contingency sample was collected NW of the LM 100 meters from North Triplet crater. The sample area is level and free of large blocks.

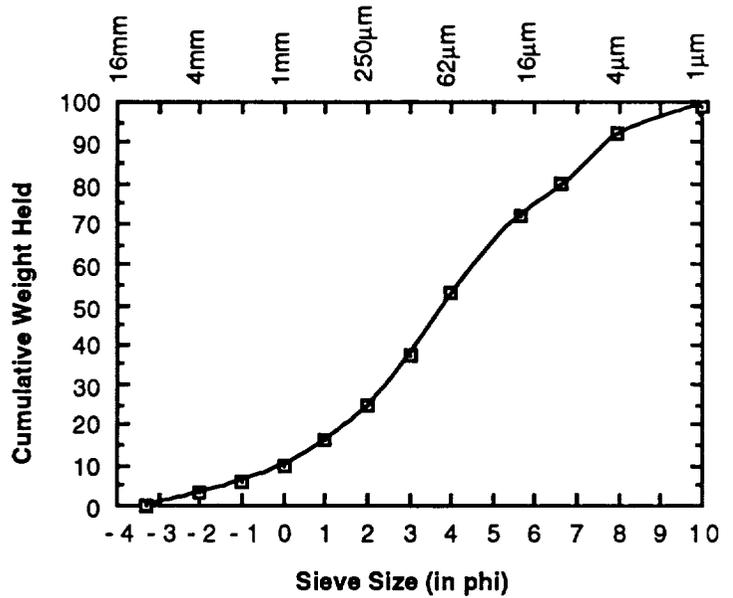
**MATURITY INDEX:**

$I_s/FeO = 66$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	3.1
2000	2.99
1000	3.95
500	6.41
250	8.19
125	12.73
63	15.32
20	19.41
10	7.39
4	12.47
1	7.03

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



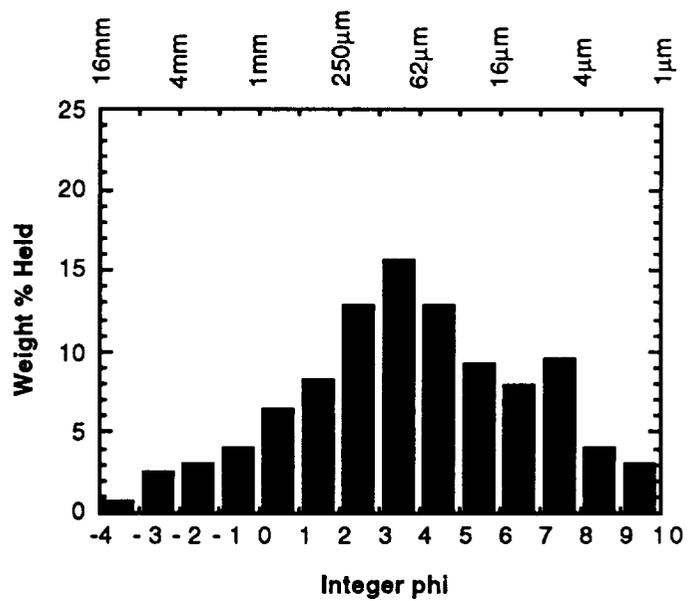
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.96
Median:	3.8
Mode:	3.5
Sorting:	3.07
Skewness:	0.03
Kurtosis:	1.03

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.34
16	0.94
25	2.04
50	3.8
75	6.03
84	7.14
95	8.71

**SIZE DISTRIBUTION HISTOGRAM**

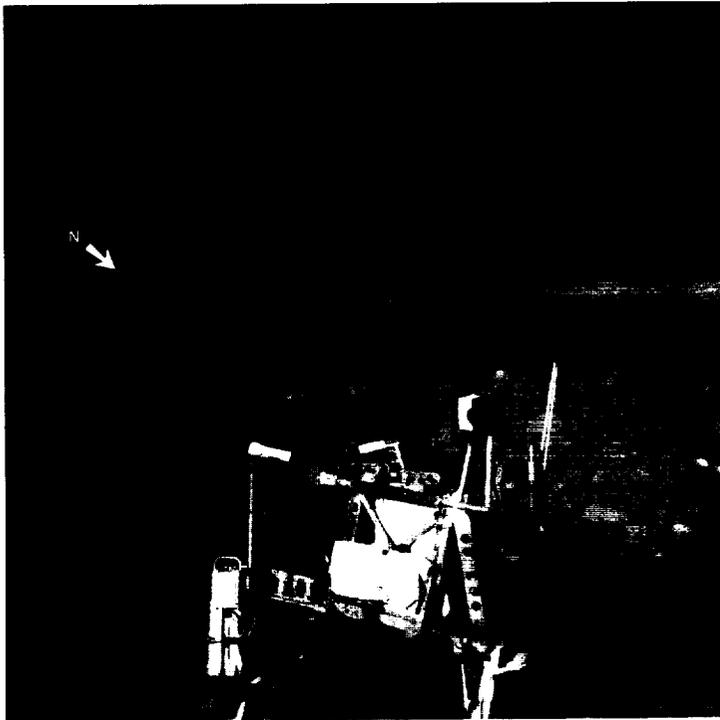




14141 Sample Environment

AS14-64-9125

Pre-sampling. MET tracks  
run across the picture.



14141 Sample Environment

AS14-64-9121

The MET at the rim of  
Cone crater. Sample area is  
in the immediate  
foreground.

# Soil: 14141

(subsample 14141,29)  
E.A. King PI

**LOCATION COMMENTS:**

Samples 14140-44 and 14068-72 were collected 3 meters from the rim of a 15 meter crater just south of Cone crater. 14141 is a surface soil identified by crew as a light gray layer, 14068-72 is a sample of some surface rocks in the area. The area near the rim of Cone crater is strewn with boulders up to 3 meters.

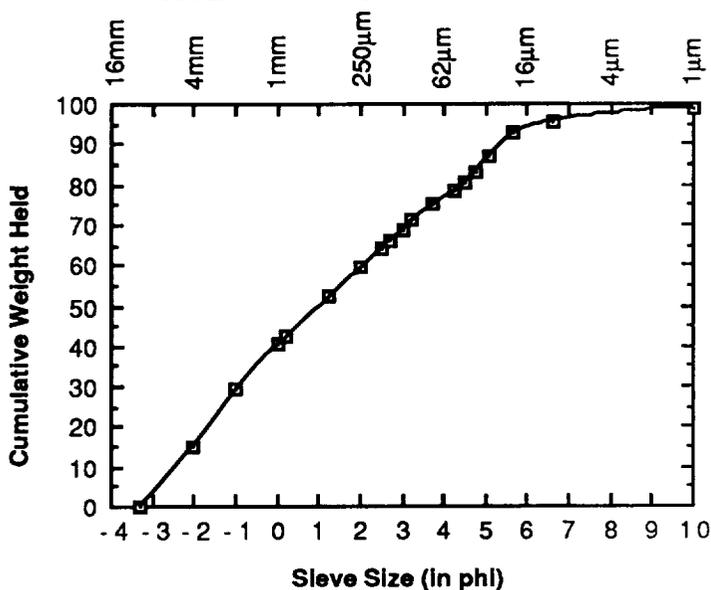
**MATURITY INDEX:**

$I_g/FeO = 5.7$  (immature)

**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	15.33
2000.00	13.88
1000.00	11.03
841.00	2.37
420.00	9.48
250.00	7.09
177.00	4.87
150.00	2.25
125.00	2.48
105.00	2.60
74.00	3.86
53.00	3.03
44.00	2.40
37.00	2.56
30.00	3.64
20.00	5.86
10.00	2.91
1.00	3.36

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



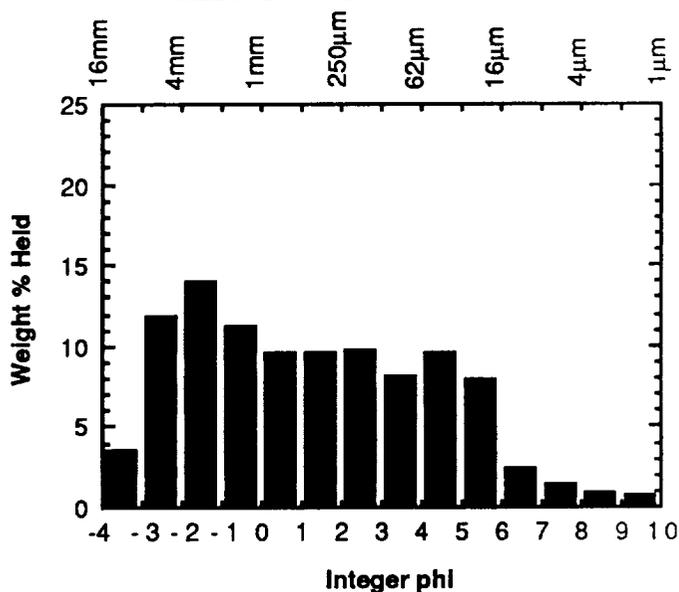
**GRAPHIC AND MOMENT MEASURES**

Mean:	1.30
Median:	1.03
Mode:	-1.50
Sorting:	3.09
Skewness:	0.14
Kurtosis:	0.75

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-2.87
16	-1.95
25	-1.31
50	1.03
75	3.72
84	4.82
95	6.34

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 14141**  
 (subsample 14141,30)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Samples 14140-44 and 14068-72 were collected 3 meters from the rim of a 15 meter crater just south of Cone crater. 14141 is a surface soil identified by crew as a light gray layer, 14068-72 is a sample of some surface rocks in the area. The area near the rim of Cone crater is strewn with boulders up to 3 meters.

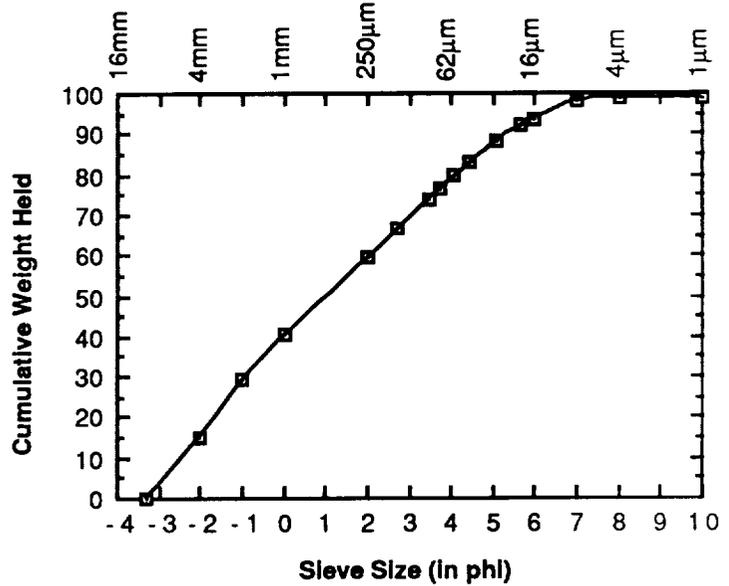
**MATURITY INDEX:**

$I_p/FeO = 5.7$  (immature)

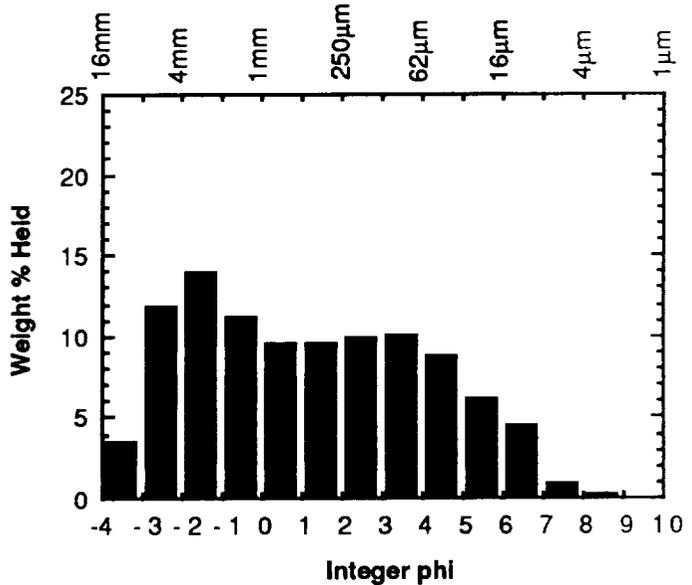
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	15.32
2000.00	13.88
1000.00	11.03
250.00	19.10
150.00	7.07
90.00	7.69
75.00	2.52
60.00	3.01
45.00	3.40
30.00	5.17
20.00	3.69
15.60	1.87
7.80	4.34
3.90	0.78
1.00	0.13

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**

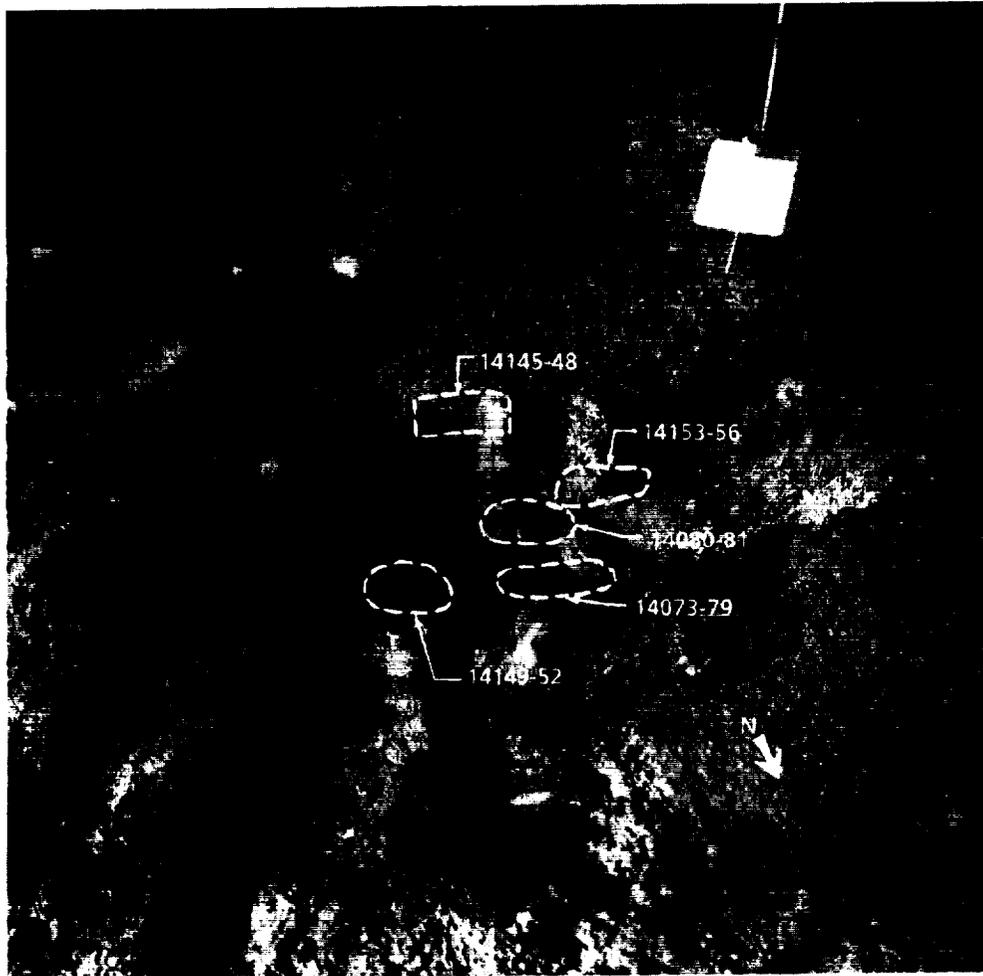


**GRAPHIC AND MOMENT MEASURES**

Mean:	1.22
Median:	1.02
Mode:	-1.50
Sorting:	3.02
Skewness:	0.12
Kurtosis:	0.77

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.87
16	-1.95
25	-1.31
50	1.02
75	3.57
84	4.59
95	6.26



14148 Sample Environment

AS14-64-9161

Post-sampling. Part of  
trench sequence.

**Soil: 14148**  
(subsample 14148,22)  
E.A. King PI

**LOCATION COMMENTS:**

Collected from the top of a trench at Station G, 30 m NE of North Triplet crater. 14145-48 collected from the top of the trench, 14153-56 is mixed material from the middle two layers, 14080-81 below that, and 14073-79 and 14149-52 from the bottom of a 40 cm trench. Astronaut Shepard reports the surface fines were so loose the trench walls kept falling in and layered materials were mixed. Bottom layers have pebbles in it.

**MATURITY INDEX:**

$I_g/FeO = 74$  (mature)

**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	1.18
2000.00	2.15
1000.00	3.62
841.00	0.37
420.00	5.40
250.00	6.89
177.00	5.35
150.00	3.30
125.00	3.36
105.00	4.75
74.00	6.89
53.00	5.23
44.00	4.29
37.00	4.25
30.00	7.18
20.00	14.32
10.00	7.87
1.00	12.63

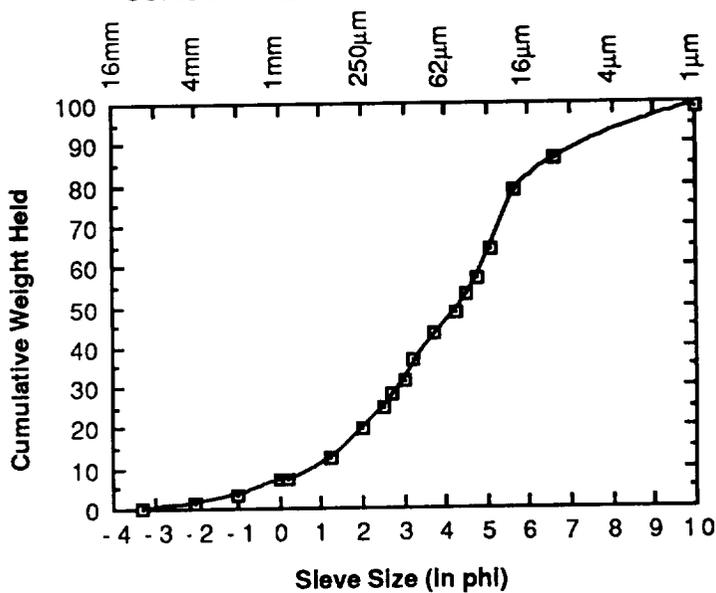
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.08
Median:	4.34
Mode:	5.50
Sorting:	2.55
Skewness:	-0.11
Kurtosis:	1.26

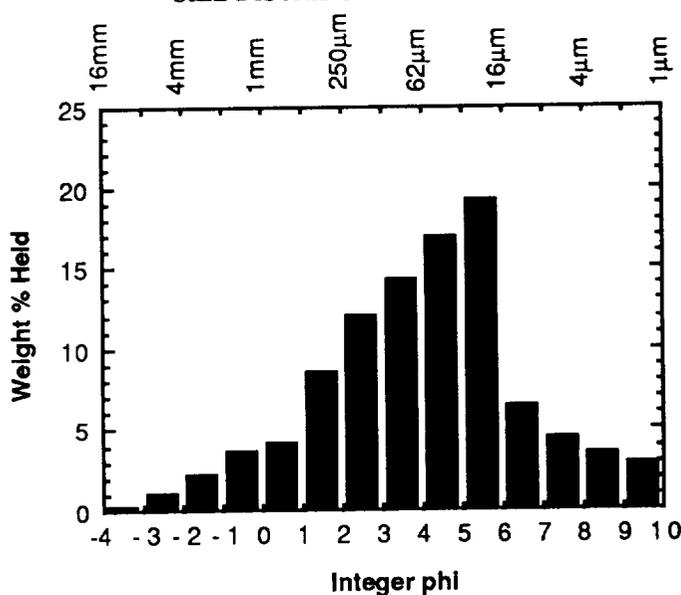
**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-0.53
16	1.63
25	2.50
50	4.34
75	5.50
84	6.27
95	8.68

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



Soil: 14148  
(subsample 14148,23)  
D.S. McKay PI

**LOCATION COMMENTS:**

Collected from the top of a trench at Station G, 30 m NE of North Triplet crater. 14145-48 collected from the top of the trench, 14153-56 is mixed material from the middle two layers, 14080-81 below that, and 14073-79 and 14149-52 from the bottom of a 40 cm trench. Astronaut Shepard reports the surface fines were so loose the trench walls kept falling in and layered materials were mixed. Bottom layers have pebbles in it.

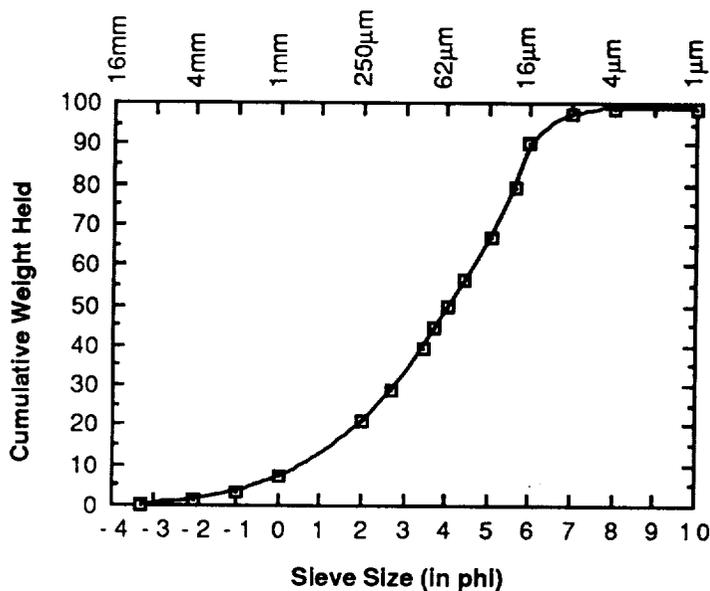
**MATURITY INDEX:**

$I_s/FeO = 74$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	1.18
2000.00	2.15
1000.00	3.62
250.00	13.77
150.00	8.29
90.00	10.50
75.00	4.62
60.00	5.37
45.00	6.73
30.00	10.49
20.00	12.50
15.60	10.82
7.80	7.04
3.90	1.63
1.00	0.29

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



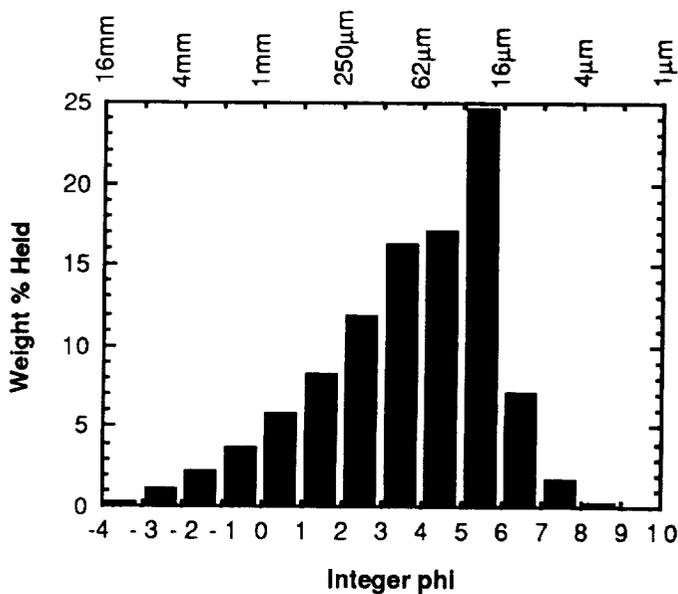
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.78
Median:	4.09
Mode:	5.50
Sorting:	2.15
Skewness:	-0.26
Kurtosis:	0.94

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.50
16	1.46
25	2.41
50	4.09
75	5.46
84	5.81
95	6.54

**SIZE DISTRIBUTION HISTOGRAM**



ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



14149 Sample Environment

AS14-64-9161

Post-sampling. Part of  
trench sequence.

**Soil: 14149**  
(subsample 14149,39)  
D.S. McKay PI

**LOCATION COMMENTS:**

Collected from the bottom of a trench at Station G, 30 m NE of North Triplet crater. 14145-48 collected from the top of the trench, 14153-56 is mixed material from the middle two layers, 14080-81 below that, and 14073-79 and 14149-52 from the bottom of a 40 cm trench. Astronaut Shepard reports the surface fines were so loose the trench walls kept falling in and layered materials were mixed. Bottom layers have pebbles in it. This is reflected by a greater amount of coarse fraction in this soil.

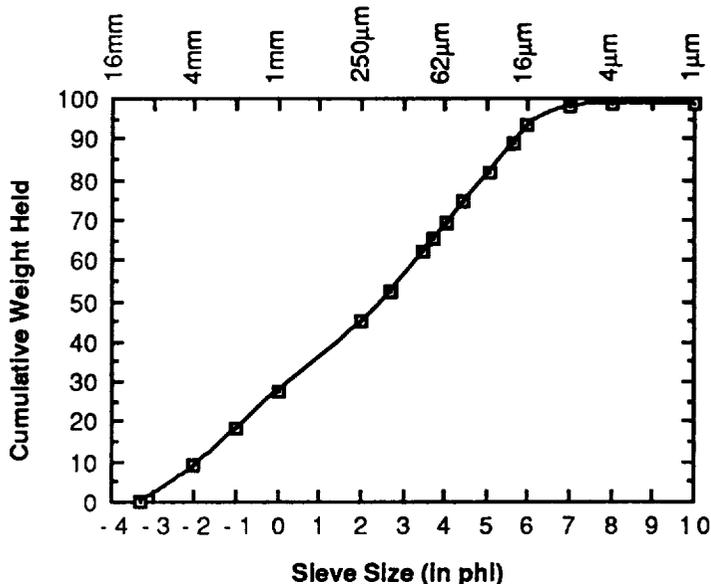
**MATURITY INDEX:**

$I_s/FeO = 10$  (Immature)

**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	8.97
2000.00	9.22
1000.00	9.47
250.00	17.18
150.00	7.75
90.00	9.33
75.00	3.48
60.00	3.79
45.00	5.23
30.00	7.31
20.00	7.28
15.60	4.72
7.80	4.17
3.90	0.95
1.00	0.16

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



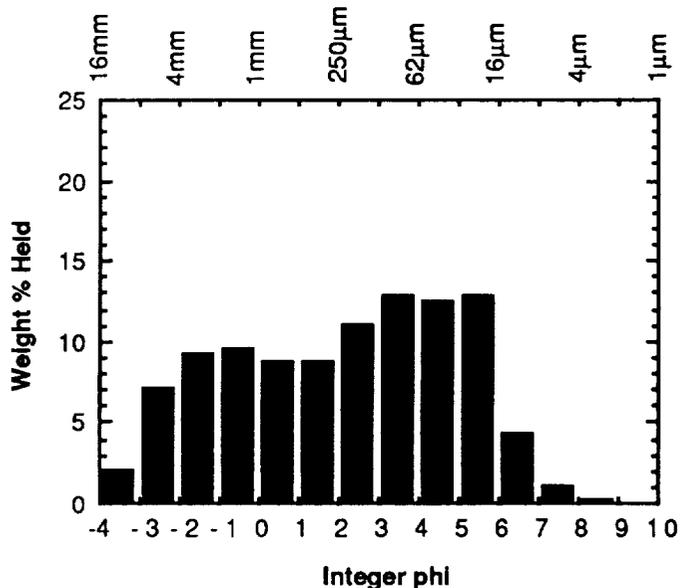
**GRAPHIC AND MOMENT MEASURES**

Mean:	2.17
Median:	2.50
Mode:	5.50
Sorting:	2.95
Skewness:	-0.15
Kurtosis:	0.75

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-2.54
16	-1.23
25	-0.28
50	2.50
75	4.52
84	5.24
95	6.21

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 14149**  
(subsample 14149,38)  
E.A. King PI

**LOCATION COMMENTS:**

Collected from the bottom of a trench at Station G, 30 m NE of North Triplet crater. 14145-48 collected from the top of the trench, 14153-56 is mixed material from the middle two layers, 14080-81 below that, and 14073-79 and 14149-52 from the bottom of a 40 cm trench. Astronaut Shepard reports the surface fines were so loose the trench walls kept falling in and layered materials were mixed. Bottom layers have pebbles in it. This is reflected by a greater amount of coarse fraction in this soil.

**MATURITY INDEX:**

$I_s/FeO = 10$  (immature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	8.97
2000.00	9.21
1000.00	9.47
841.00	0.97
420.00	7.09
250.00	6.42
177.00	4.51
150.00	2.17
125.00	2.74
105.00	3.36
74.00	4.88
53.00	4.57
44.00	3.11
37.00	4.22
30.00	4.88
20.00	13.09
10.00	7.25
1.00	2.09

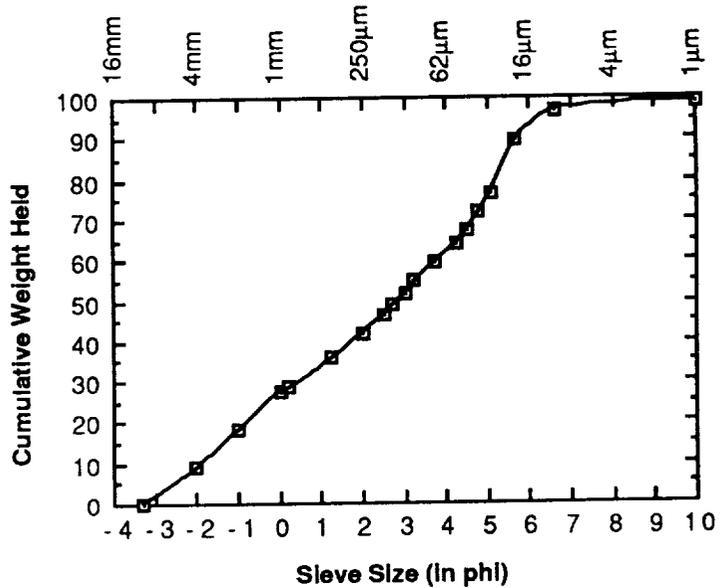
**GRAPHIC AND MOMENT MEASURES**

Mean:	2.33
Median:	2.86
Mode:	5.50
Sorting:	2.98
Skewness:	-0.23
Kurtosis:	0.68

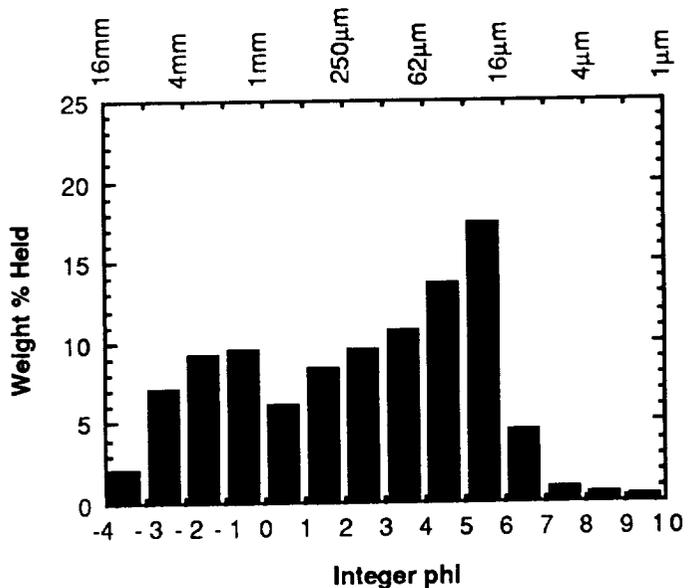
**MOMENT MEASURE DATA**

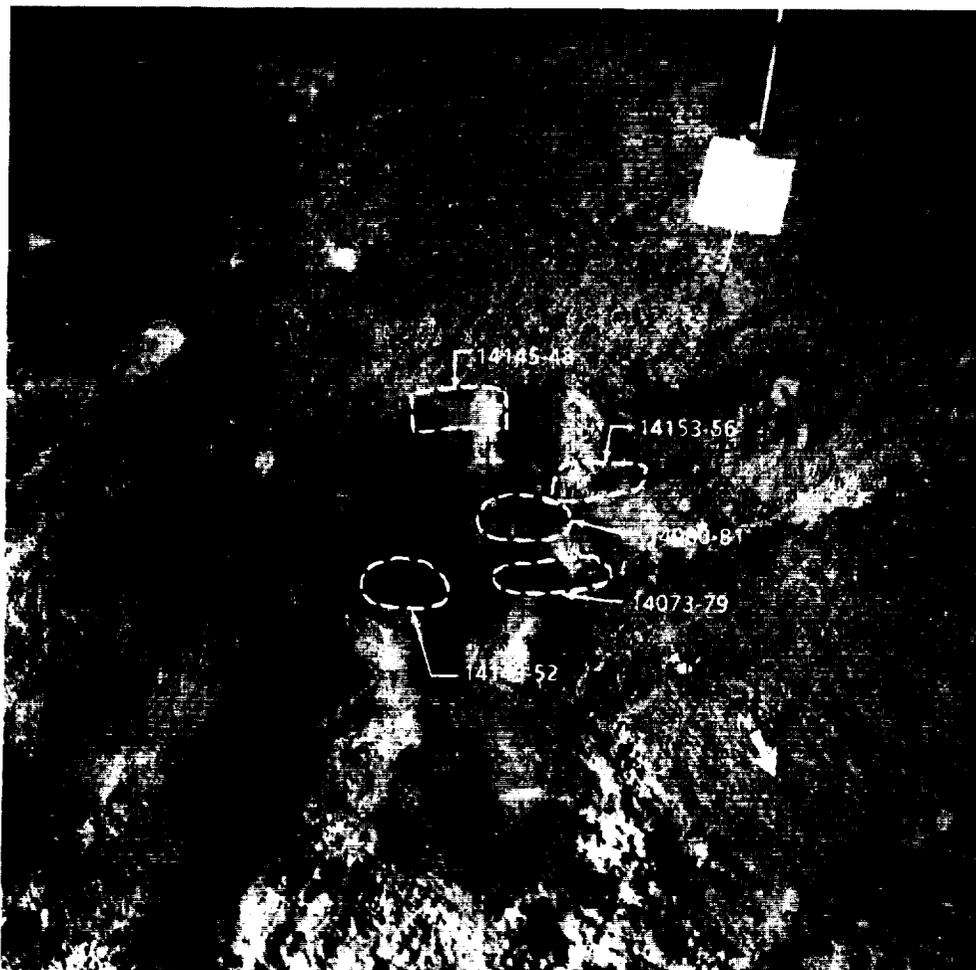
Wt % held	$\phi$ size
5	-2.54
16	-1.23
25	-0.28
50	2.86
75	4.96
84	5.38
95	6.22

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**





14156 Sample Environment

AS14-64-9161

Post-sampling. Part of  
trench sequence.

**Soil: 14156**  
(subsample 14156,22)  
E.A. King PI

**LOCATION COMMENTS:**

Trench sample collected at Station G 30 m NE of North Triplet crater. 14145-48 collected from the top of the trench, 14153-56 is mixed material from the middle two layers including a thin layer of glassy pebbles, 14080-81 below that, and 14073-79 and 14149-52 from the bottom of the 40 cm trench. Astronaut Shepard reports the surface fines were so loose the trench walls kept falling in the layered materials mixed.

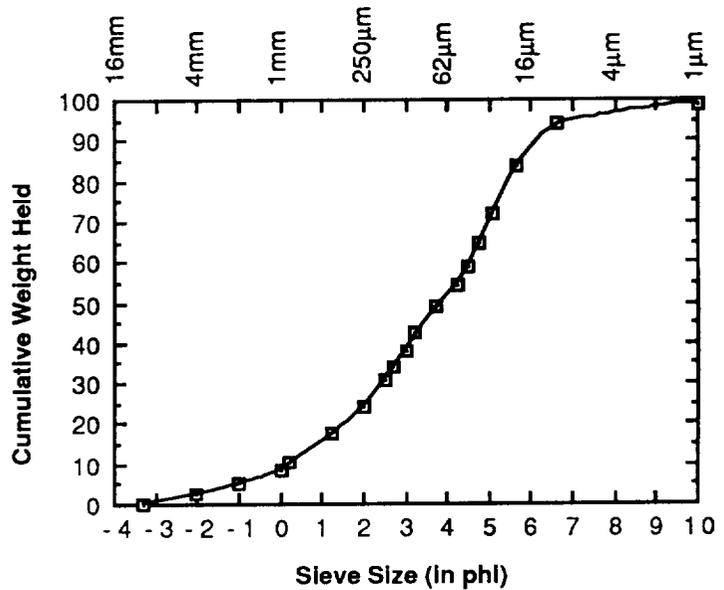
**MATURITY INDEX:**

$I_s/FeO = 68$  (mature)

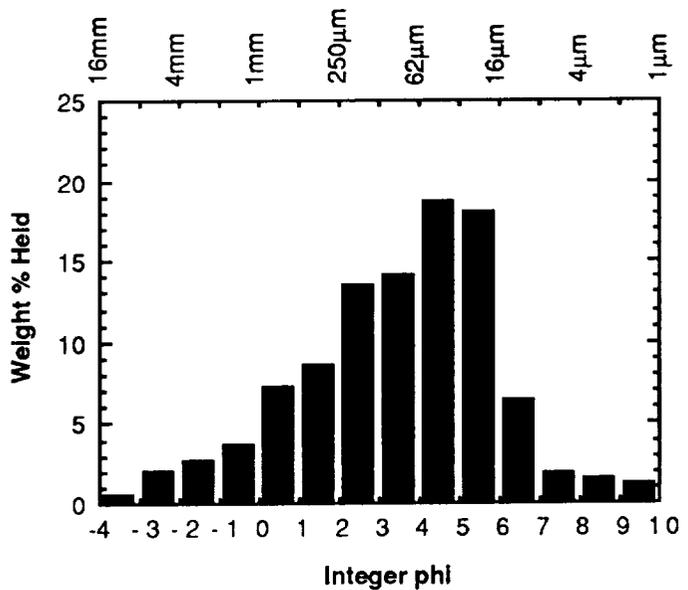
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.42
2000.00	2.57
1000.00	3.60
841.00	1.85
420.00	7.22
250.00	6.68
177.00	6.56
150.00	3.32
125.00	3.50
105.00	4.52
74.00	6.68
53.00	5.61
44.00	4.44
37.00	5.60
30.00	7.10
20.00	12.25
10.00	9.92
1.00	5.15

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.51
Median:	3.84
Mode:	4.50
Sorting:	2.39
Skewness:	-0.20
Kurtosis:	1.06

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.00
16	1.03
25	2.06
50	3.84
75	5.21
84	5.65
95	7.18

**Soil: 14156**  
 (subsample 14156,23)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Trench sample collected at Station G 30 m NE of North Triplet crater. 14145-48 collected from the top of the trench, 14153-56 is mixed material from the middle two layers including a thin layer of glassy pebbles, 14080-81 below that, and 14073-79 and 14149-52 from the bottom of the 40 cm trench. Astronaut Shepard reports the surface fines were so loose the trench walls kept falling in the layered materials mixed.

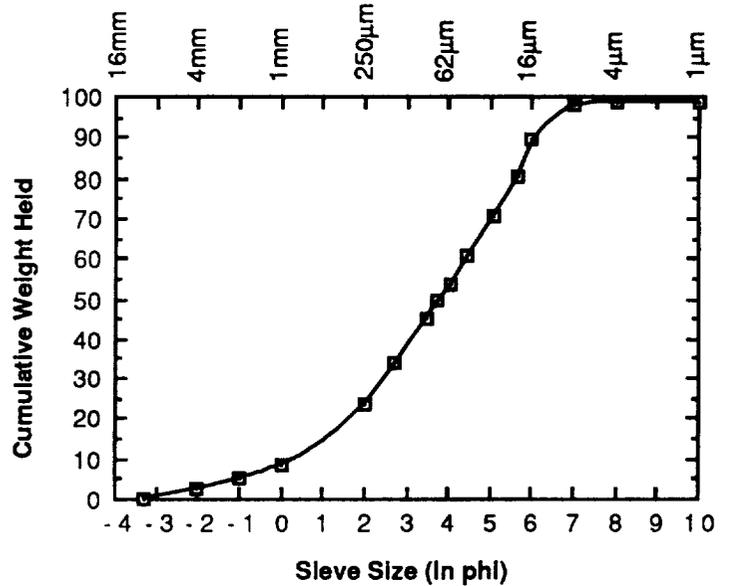
**MATURITY INDEX:**

$I_s/FeO = 68$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.42
2000.00	2.56
1000.00	3.59
250.00	14.94
150.00	10.57
90.00	11.17
75.00	4.22
60.00	4.03
45.00	7.50
30.00	9.65
20.00	9.50
15.60	9.20
7.80	8.45
3.90	1.05
1.00	0.15

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



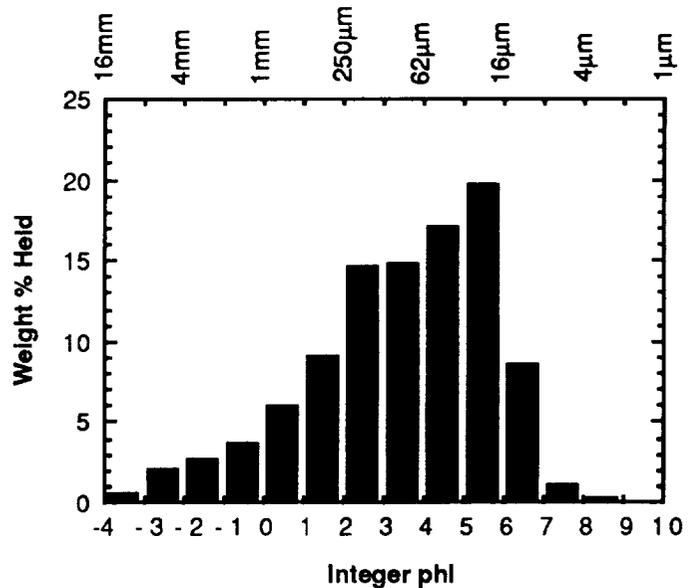
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.59
Median:	3.78
Mode:	5.50
Sorting:	2.28
Skewness:	-0.20
Kurtosis:	0.95

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.99
16	1.21
25	2.12
50	3.78
75	5.33
84	5.80
95	6.48

**SIZE DISTRIBUTION HISTOGRAM**



ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



14163 Sample Environment

AS14-67-9367

Post-sampling. Sample  
area in background of  
photo 15 meters from LM  
near MET tracks.

**Soil: 14163**  
 (subsample 14163,120)  
 E.A. King PI

**LOCATION COMMENTS:**

Bulk sample: 14160-63, 14402, 14422, and 14425-53 collected 15 m NW of LM. Samples collected from the bottom of a 1 m crater with glass in the bottom; Astronaut Shepard identifies the crater as secondary. Sample area is level and free of large blocks.

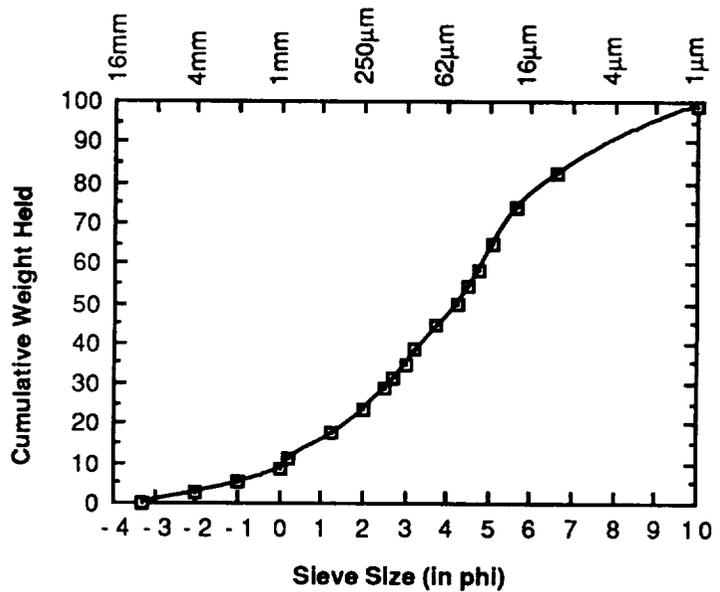
**MATURITY INDEX:**

$I_s/FeO = 57$  (submature)

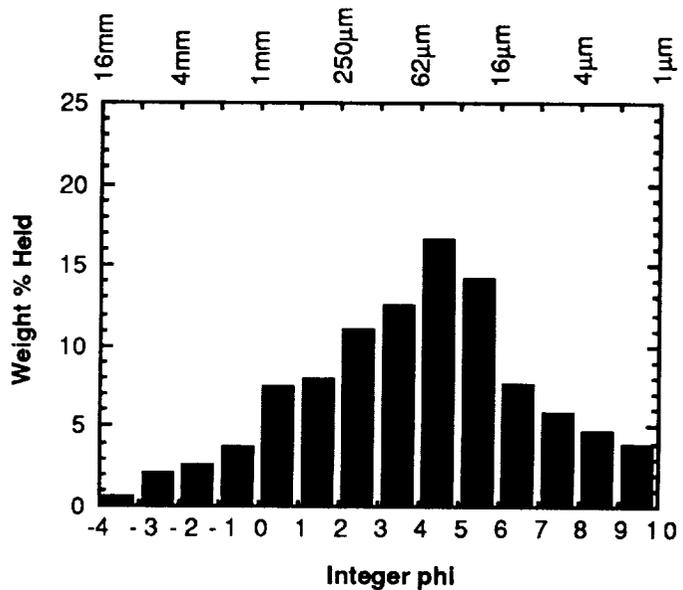
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.50
2000.00	2.50
1000.00	3.65
841.00	2.75
420.00	6.20
250.00	6.14
177.00	5.10
150.00	2.65
125.00	3.13
105.00	3.63
74.00	6.22
53.00	5.18
44.00	4.56
37.00	4.17
30.00	6.29
20.00	9.25
10.00	8.68
1.00	16.41

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	4.04
Median:	4.26
Mode:	4.50
Sorting:	2.97
Skewness:	-0.08
Kurtosis:	1.13

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.00
16	1.01
25	2.13
50	4.26
75	5.74
84	6.85
95	8.98

# Soil: 14163

(subsample 14163,76)  
D.S. McKay PI

**LOCATION COMMENTS:**

Bulk sample: 14160-63, 14402, 14422, and 14425-53 collected 15 m NW of LM. Samples collected from the bottom of a 1 m crater with glass in the bottom; Astronaut Shepard identifies the crater as secondary. Sample area is level and free of large blocks.

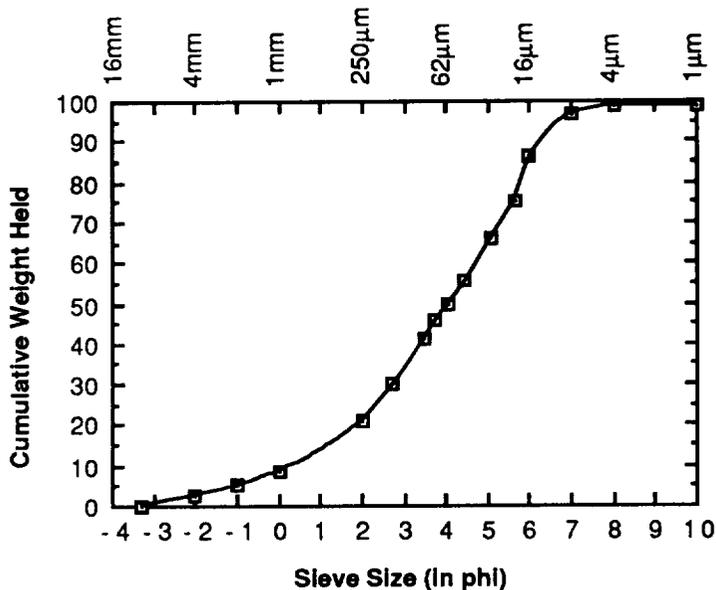
**MATURITY INDEX:**

$I_s/FeO = 0$

**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	2.49
2000.00	2.49
1000.00	3.66
250.00	12.58
150.00	8.58
90.00	11.24
75.00	4.66
60.00	4.15
45.00	5.62
30.00	10.21
20.00	9.43
15.60	11.34
7.80	10.25
3.90	1.99
1.00	0.28

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



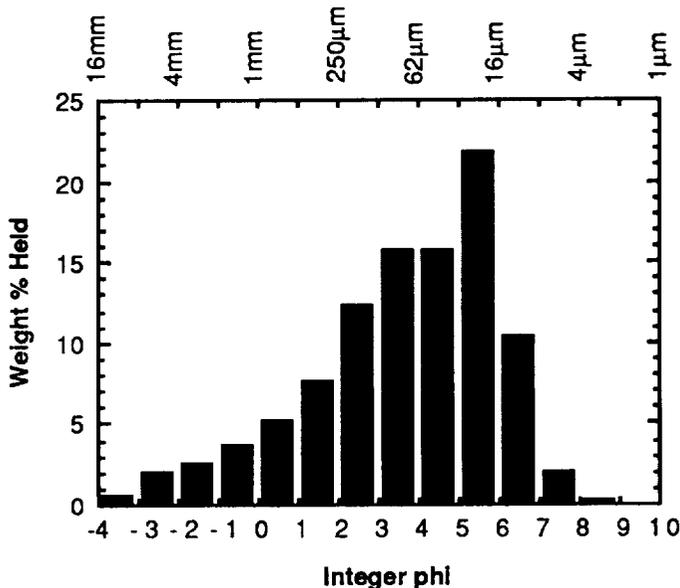
**GRAPHIC AND MOMENT MEASURES**

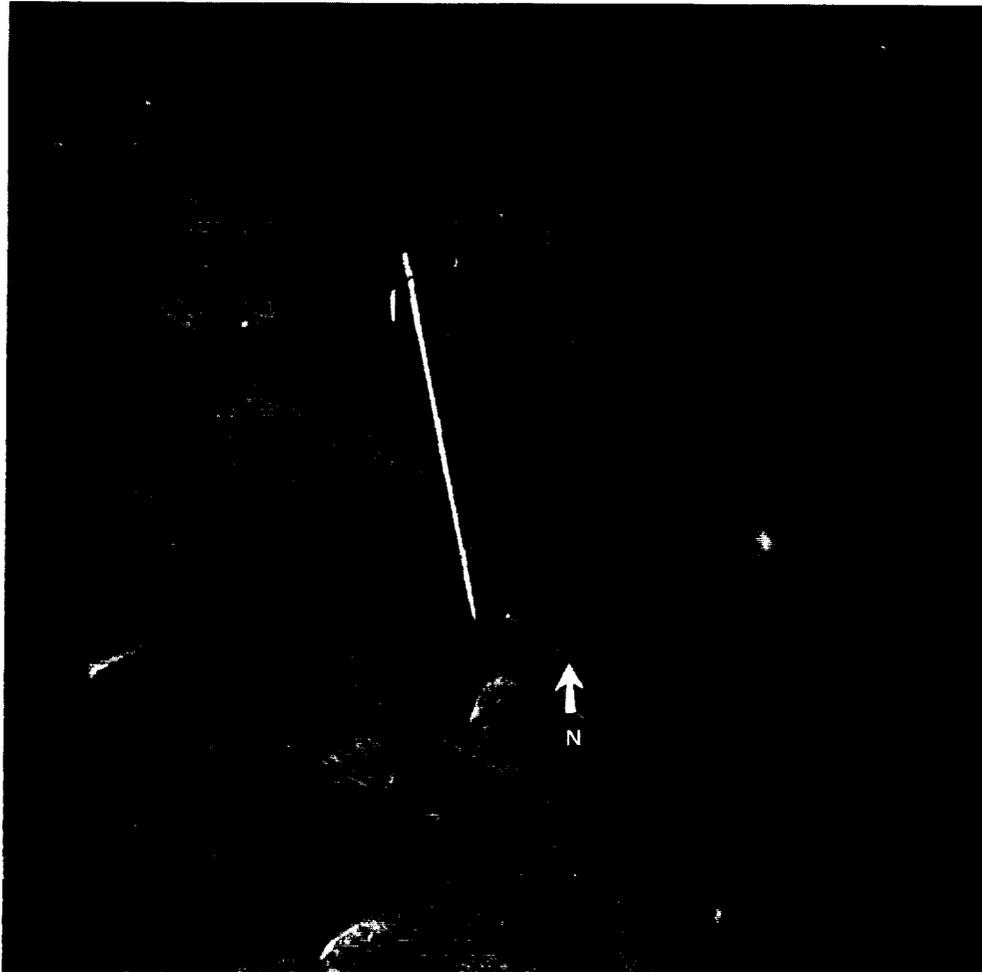
Mean:	3.77
Median:	4.07
Mode:	5.50
Sorting:	2.30
Skewness:	-0.26
Kurtosis:	0.95

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-1.00
16	1.34
25	2.35
50	4.07
75	5.64
84	5.89
95	6.65

**SIZE DISTRIBUTION HISTOGRAM**





14230 Sample Environment

AS14-68-9455

Pre-sampling. Core tube  
partially inserted at sample  
site. Weird crater in  
background.

# Soil: 14230

(subsample 14230,67) (Core: depth from surface, 11.8-12.3 cm)

E.A. King PI

## LOCATION COMMENTS:

Core 14230 was taken at Station G, on the east side of the triplet craters very near core 14220 and trench samples 14145-48 and 14153-56. Intended to be a triple core tube, but driving became hard after a tube and a quarter, and material in the top tube fell out. Area generally level and free of large blocks. This sample from the top of three stratigraphic units of core.

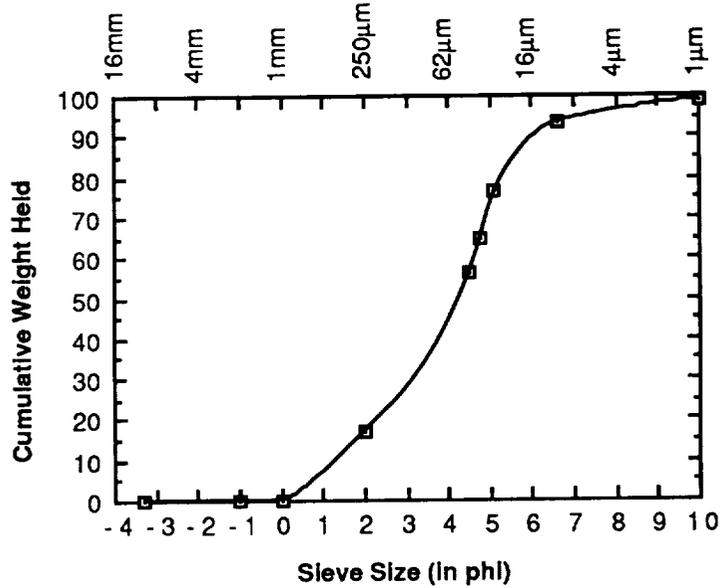
## MATURITY INDEX:

$I_g/FeO = 57$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	0.00
1000.00	0.00
250.00	16.88
44.00	39.40
37.00	8.49
30.00	11.45
10.00	17.36
1.00	5.44

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



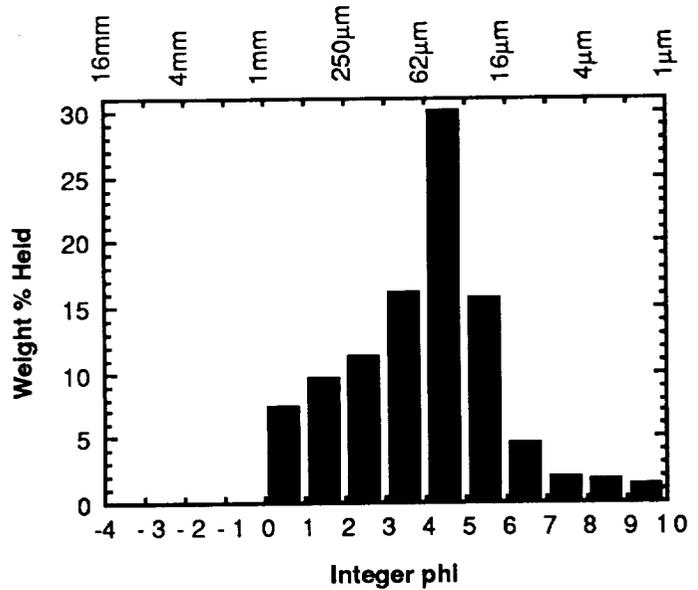
## GRAPHIC AND MOMENT MEASURES

Mean:	3.89
Median:	4.26
Mode:	4.50
Sorting:	1.89
Skewness:	-0.19
Kurtosis:	1.18

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.79
16	1.91
25	2.75
50	4.26
75	5.02
84	5.49
95	7.36

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 14230

(subsample 14230,93) (Core: depth from surface, 15.3-15.8 cm)  
E.A. King PI

## LOCATION COMMENTS:

Core 14230 was taken at Station G, on the east side of the triplet craters very near core 14220 and trench samples 14145-48 and 14153-56. Intended to be a triple core tube, but driving became hard after a tube and a quarter, and material in the top tube fell out. Area generally level and free of large blocks. This sample from the top of three stratigraphic units of core.

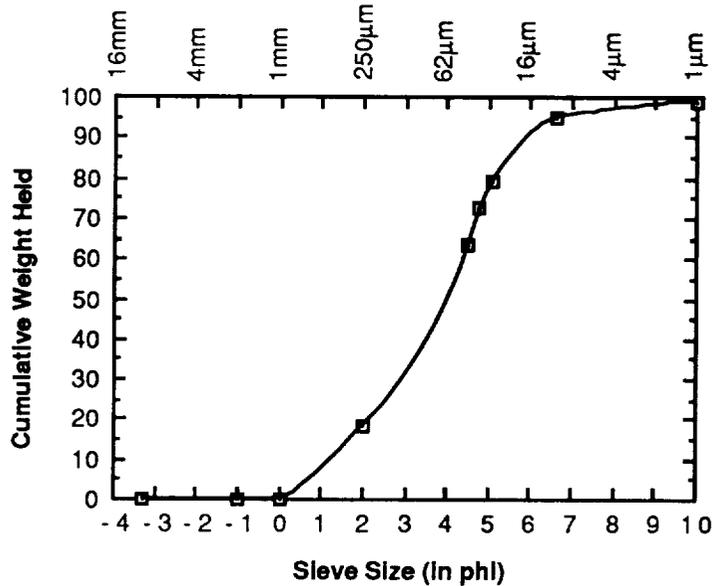
## MATURITY INDEX:

$I_s/FeO = 50$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	0.00
1000.00	0.00
250.00	18.24
44.00	45.01
37.00	9.61
30.00	6.29
10.00	15.72
1.00	4.13

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



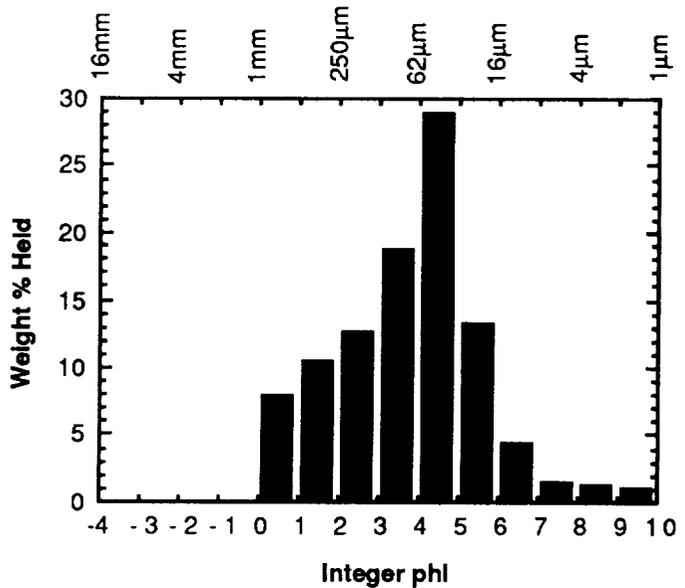
## GRAPHIC AND MOMENT MEASURES

Mean:	3.73
Median:	4.02
Mode:	4.50
Sorting:	1.80
Skewness:	-0.17
Kurtosis:	1.08

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.76
16	1.79
25	2.58
50	4.02
75	4.84
84	5.37
95	6.72

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 14230

(subsample 14230,113) (Core: depth from surface, 16.0-16.5 cm)

D.D. Bogard PI

## LOCATION COMMENTS:

Core 14230 was taken at Station G, on the east side of the triplet craters very near core 14220 and trench samples 14145-48 and 14153-56. Intended to be a triple core tube, but driving became hard after a tube and a quarter, and material in the top tube fell out. Area generally level and free of large blocks. This sample in the upper of three stratigraphic units of core.

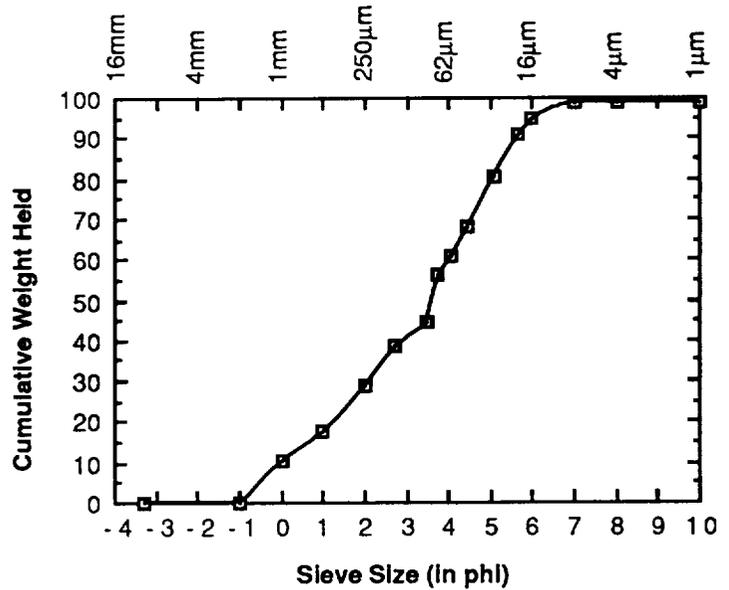
## MATURITY INDEX:

$I_g/FeO = 55$  (submature)

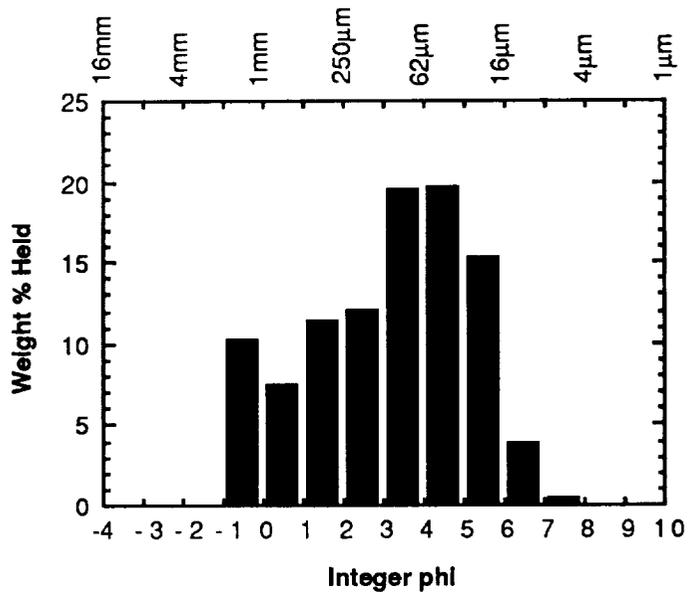
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	0.00
1000.00	10.15
500.00	7.34
250.00	11.20
150.00	9.71
90.00	5.82
75.00	12.26
60.00	4.32
45.00	7.34
30.00	12.57
20.00	9.84
15.60	4.29
7.80	3.74
3.90	0.37
1.00	0.06

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	3.22
Median:	3.61
Mode:	4.50
Sorting:	2.10
Skewness:	-0.26
Kurtosis:	0.87

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-0.51
16	0.81
25	1.69
50	3.61
75	4.79
84	5.24
95	6.03

# Soil: 14230

(subsample 14230,76) (Core: depth from surface, 18.9-19.0 cm)  
E.A. King PI

## LOCATION COMMENTS:

Core 14230 was taken at Station G, on the east side of the triplet craters very near core 14220 and trench samples 14145-48 and 14153-56. Intended to be a triple core tube, but driving became hard after a tube and a quarter, and material in the top tube fell out. Area generally level and free of large blocks. This sample from the middle of three stratigraphic units of core.

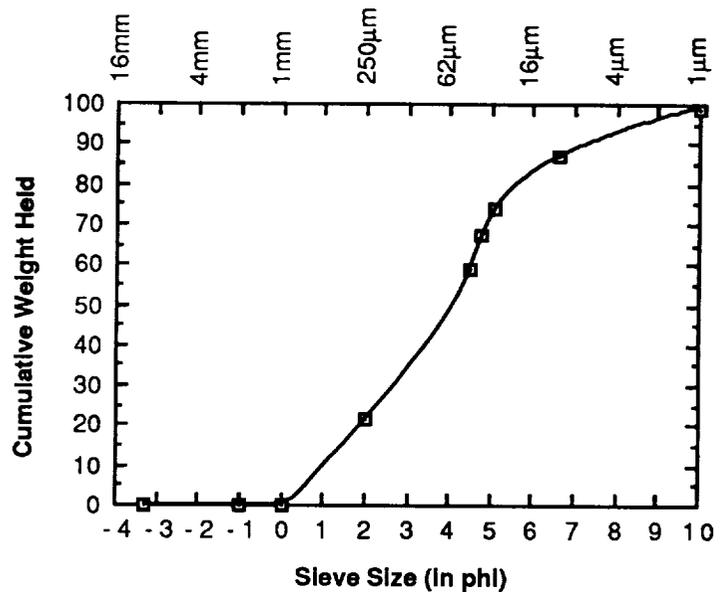
## MATURITY INDEX:

$I_g/FeO = 51$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	0.00
1000.00	0.00
250.00	21.63
44.00	37.41
37.00	8.17
30.00	6.51
10.00	13.36
1.00	11.92

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



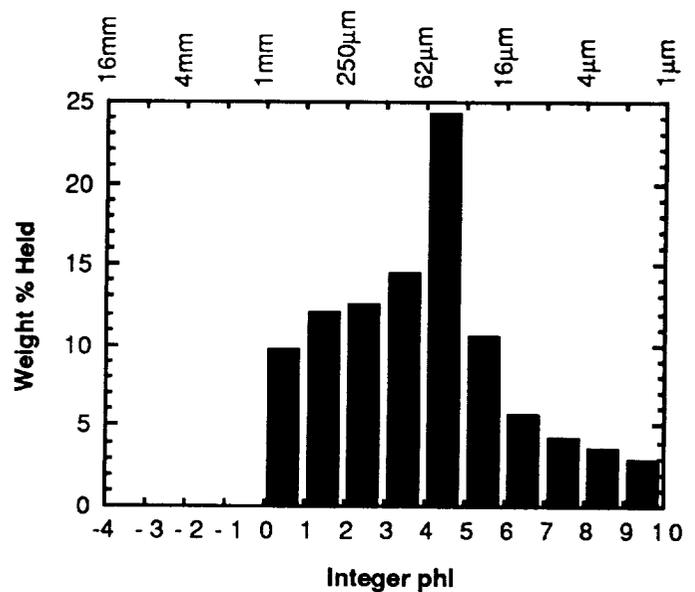
## GRAPHIC AND MOMENT MEASURES

Mean:	3.90
Median:	4.07
Mode:	4.50
Sorting:	2.36
Skewness:	0.02
Kurtosis:	1.14

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.62
16	1.53
25	2.28
50	4.07
75	5.15
84	6.11
95	8.64

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 14230

(subsample 14230,121) (Core: depth from surface, 19.0-19.5 cm)

D.D. Bogard PI

## LOCATION COMMENTS:

Core 14230 was taken at Station G, on the east side of the triplet craters very near core 14220 and trench samples 14145-48 and 14153-56. Intended to be a triple core tube, but driving became hard after a tube and a quarter, and material in the top tube fell out. Area generally level and free of large blocks. This sample in the middle of three stratigraphic units of core.

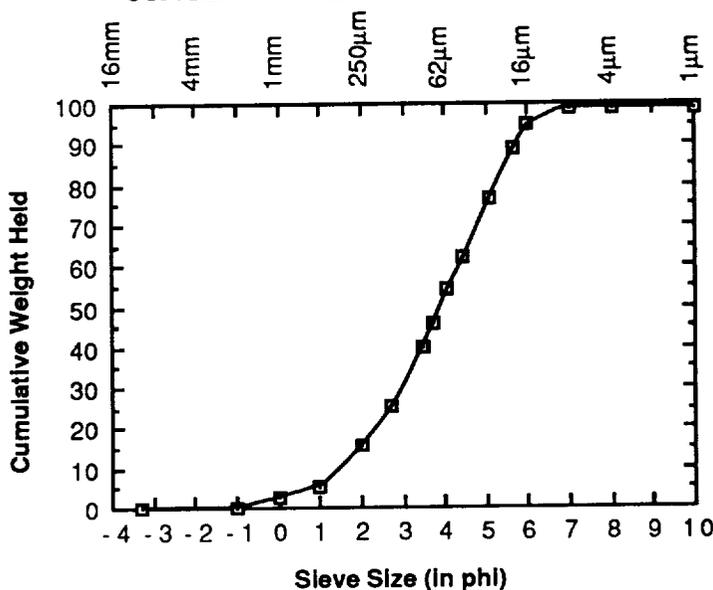
## MATURITY INDEX:

$I_g/FeO = 51$  (submature)

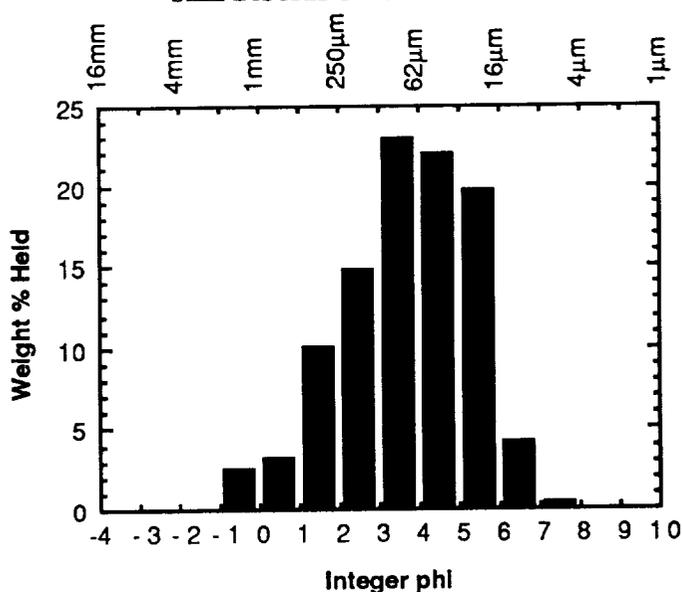
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	0.00
1000.00	2.45
500.00	3.04
250.00	9.95
150.00	10.04
90.00	14.43
75.00	5.79
60.00	8.84
45.00	7.25
30.00	14.50
20.00	12.39
15.60	5.83
7.80	4.04
3.90	0.40
1.00	0.06

CUMULATIVE WEIGHT DISTRIBUTION CURVE



SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	3.78
Median:	3.89
Mode:	3.50
Sorting:	1.63
Skewness:	-0.13
Kurtosis:	0.93

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.86
16	2.05
25	2.71
50	3.89
75	5.00
84	5.41
95	6.09

# Soil: 14230

(subsample 14230,80) (Core: depth from surface, 21.5-22.0 cm)  
E.A. King PI

## LOCATION COMMENTS:

Core 14230 was taken at Station G, on the east side of the triplet craters very near core 14220 and trench samples 14145-48 and 14153-56. Intended to be a triple core tube, but driving became hard after a tube and a quarter, and material in the top tube fell out. Area generally level and free of large blocks. This sample from the bottom of three stratigraphic units of core.

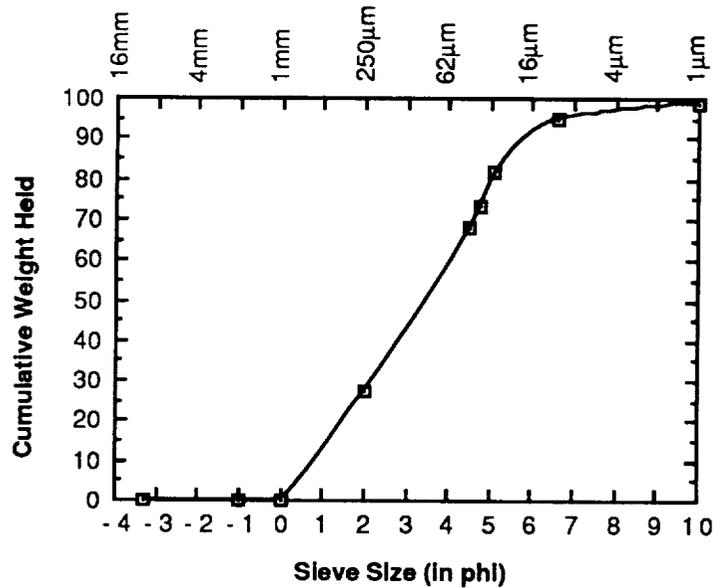
## MATURITY INDEX:

$I_s/FeO = 53$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	0.00
1000.00	0.00
250.00	27.69
44.00	40.48
37.00	5.06
30.00	8.31
10.00	13.46
1.00	4.01

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



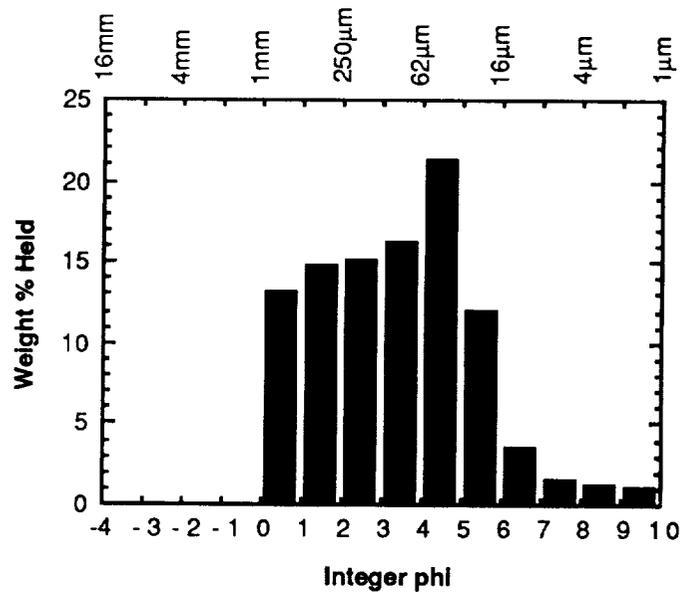
## GRAPHIC AND MOMENT MEASURES

Mean:	3.30
Median:	3.46
Mode:	4.50
Sorting:	1.94
Skewness:	-0.05
Kurtosis:	0.84

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.46
16	1.20
25	1.82
50	3.46
75	4.83
84	5.23
95	6.65

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 14230

(subsample 14230,130) (Core: depth from surface, 23.0-23.5 cm)  
D.D. Bogard PI

## LOCATION COMMENTS:

Core 14230 was taken at Station G, on the east side of the triplet craters very near core 14220 and trench samples 14145-48 and 14153-56. Intended to be a triple core tube, but driving became hard after a tube and a quarter, and material in the top tube fell out. Area generally level and free of large blocks. This sample on the bottom of three stratigraphic units of core.

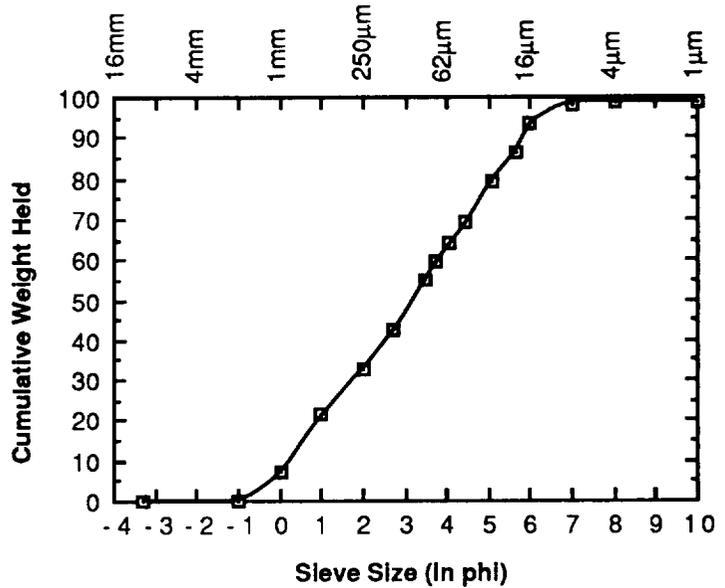
## MATURITY INDEX:

$I_s/FeO = 51$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	0.00
1000.00	6.94
500.00	14.32
250.00	11.60
150.00	9.69
90.00	12.14
75.00	4.56
60.00	4.80
45.00	4.98
30.00	10.22
20.00	7.08
15.60	7.40
7.80	4.62
3.90	0.57
1.00	0.08

CUMULATIVE WEIGHT DISTRIBUTION CURVE



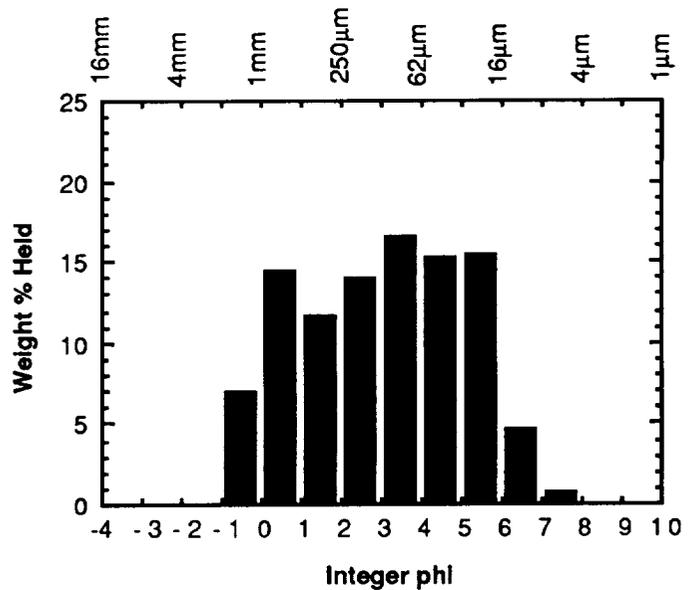
## GRAPHIC AND MOMENT MEASURES

Mean:	3.09
Median:	3.20
Mode:	3.50
Sorting:	2.18
Skewness:	-0.07
Kurtosis:	0.75

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-0.23
16	0.62
25	1.32
50	3.20
75	4.81
84	5.46
95	6.20

SIZE DISTRIBUTION HISTOGRAM



# Soil: 14230

(subsample 14230,83) (Core: depth from surface, 23.0-23.5 cm)  
E.A. King PI

## LOCATION COMMENTS:

Core 14230 was taken at Station G, on the east side of the triplet craters very near core 14220 and trench samples 14145-48 and 14153-56. Intended to be a triple core tube, but driving became hard after a tube and a quarter, and material in the top tube fell out. Area generally level and free of large blocks. This sample from the bottom of three stratigraphic units of core.

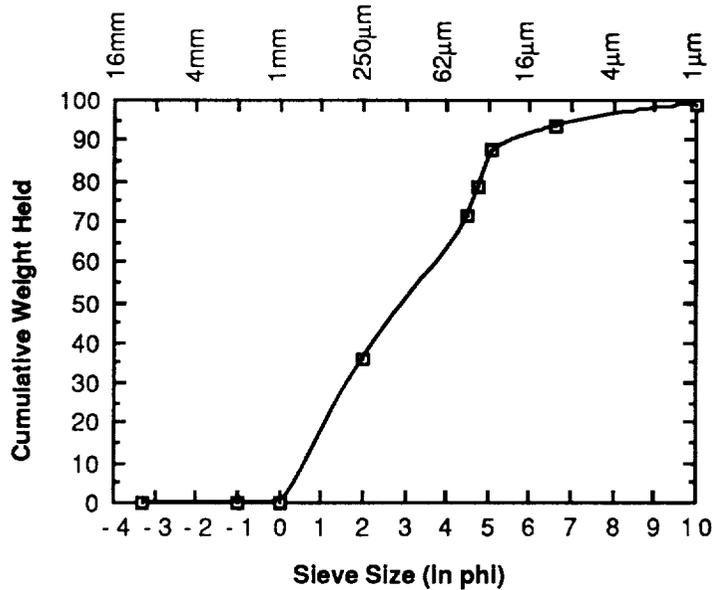
## MATURITY INDEX:

$I_g/FeO = 51$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	0.00
1000.00	0.00
250.00	36.09
44.00	35.00
37.00	7.31
30.00	9.16
10.00	5.78
1.00	5.67

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



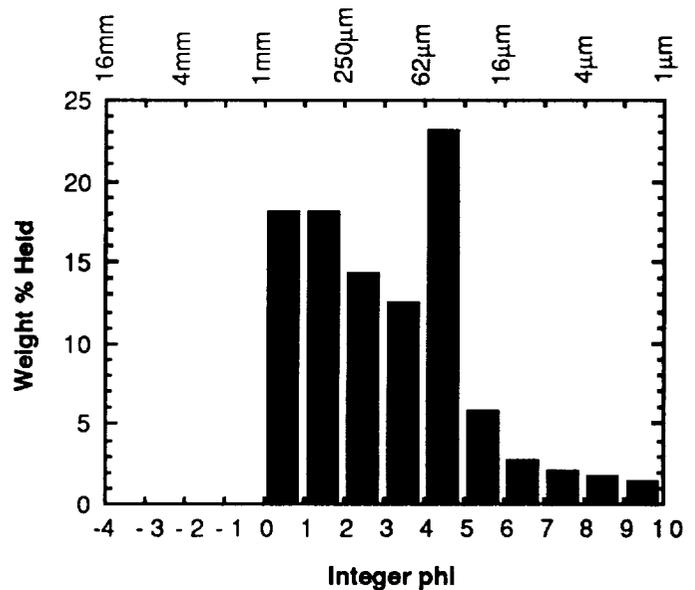
## GRAPHIC AND MOMENT MEASURES

Mean:	2.94
Median:	2.98
Mode:	4.50
Sorting:	2.06
Skewness:	0.13
Kurtosis:	0.87

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.46
16	0.91
25	1.35
50	2.98
75	4.64
84	4.94
95	7.42

## SIZE DISTRIBUTION HISTOGRAM





14259 Sample Environment

AS14-67-9388

Pre-sampling. Scoop from  
within the 4 meter circle  
drawn.

**Soil: 14259**  
(subsample 14259,52)  
D.S. McKay PI

**LOCATION COMMENTS:**

This scoop sample is part of the comprehensive sample collected 110 m WNW of LM along with 14165-14189, 14250-14289, 14298-14300, and 14420. All samples were collected from within a 4 m circle drawn by Astronaut Shepard. Astronaut Mitchell reports, "The number of surface rocks, or rocks compared with the number of surface fines is very small Houston. There's a few boulders lying around and there's a few blocks around some of the craters, but by and large, it's a powdery surface."

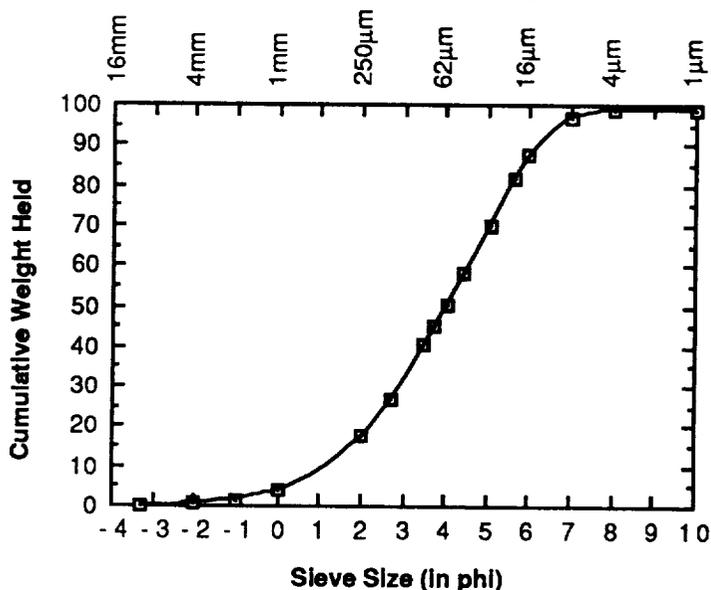
**MATURITY INDEX:**

$I_g/FeO = 85$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.49
2000.00	1.08
1000.00	2.27
250.00	13.54
150.00	9.70
90.00	13.12
75.00	4.97
60.00	5.49
45.00	7.50
30.00	12.00
20.00	11.85
15.60	5.36
7.80	9.56
3.90	1.84
1.00	0.24

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



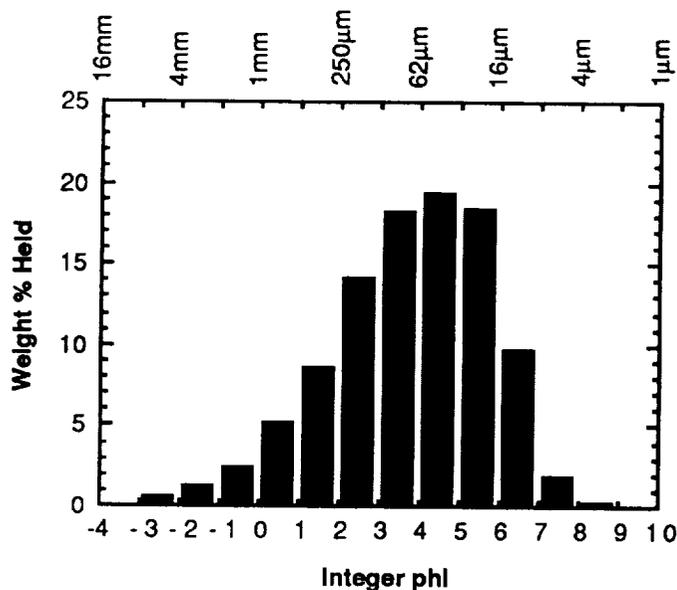
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.88
Median:	4.02
Mode:	4.50
Sorting:	1.93
Skewness:	-0.14
Kurtosis:	0.96

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.36
16	1.85
25	2.60
50	4.02
75	5.30
84	5.77
95	6.66

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 14259**  
(subsample 14259,64)  
W.V. Engelhardt PI

**LOCATION COMMENTS:**

This scoop sample is part of the comprehensive sample collected 110 m WNW of LM along with 14165-14189, 14250-14289, 14298-14300, and 14420. All samples were collected from within a 4 m circle drawn by Astronaut Shepard. Astronaut Mitchell reports, "The number of surface rocks, or rocks compared with the number of surface fines is very small Houston. There's a few boulders lying around and there's a few blocks around some of the craters, but by and large, it's a powdery surface"

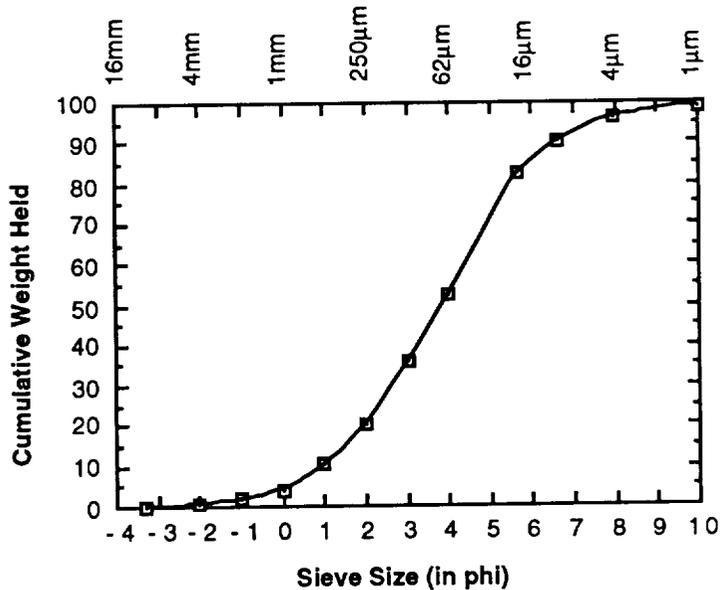
**MATURITY INDEX:**

$I_s/FeO = 85$  (mature)

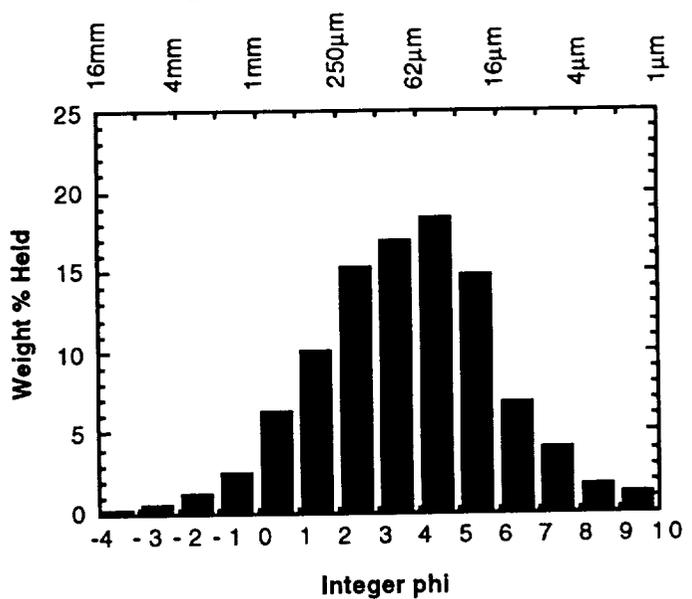
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	0.53
2000	1.17
1000	2.47
500	6.26
250	9.96
125	15.27
63	16.69
20	29.97
10	8.06
4	5.69
1	2.94

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.76
Median:	3.85
Mode:	4.5
Sorting:	2.18
Skewness:	-0.03
Kurtosis:	1.05

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.2
16	1.61
25	2.33
50	3.85
75	5.21
84	5.83
95	7.6



**Soil: 14259**  
(subsample 14259,88)  
E.A. King PI

**LOCATION COMMENTS:**

This scoop sample is part of the comprehensive sample collected 110 m WNW of LM along with 14165-14189, 14250-14289, 14298-14300, and 14420. All samples were collected from within a 4 m circle drawn by Astronaut Shepard. Astronaut Mitchell reports, "The number of surface rocks, or rocks compared with the number of surface fines is very small Houston. There's a few boulders lying around and there's a few blocks around some of the craters, but by and large, it's a powdery surface."

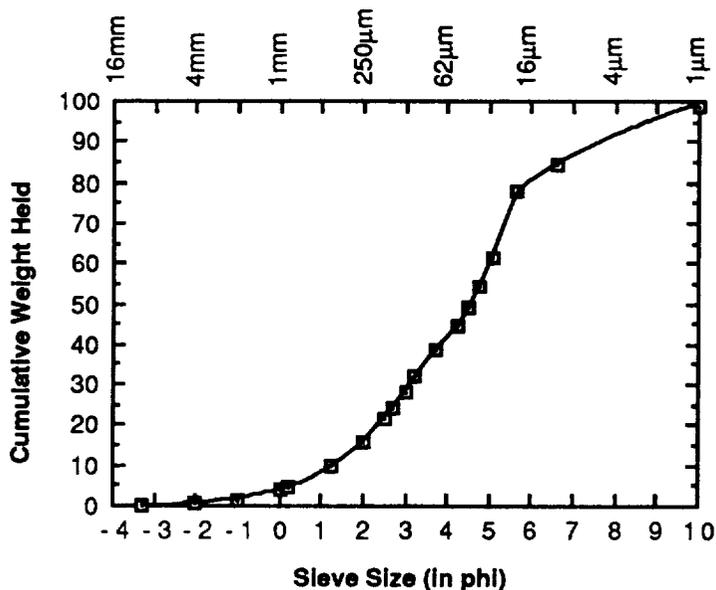
**MATURITY INDEX:**

$I_s/FeO = 85$  (mature)

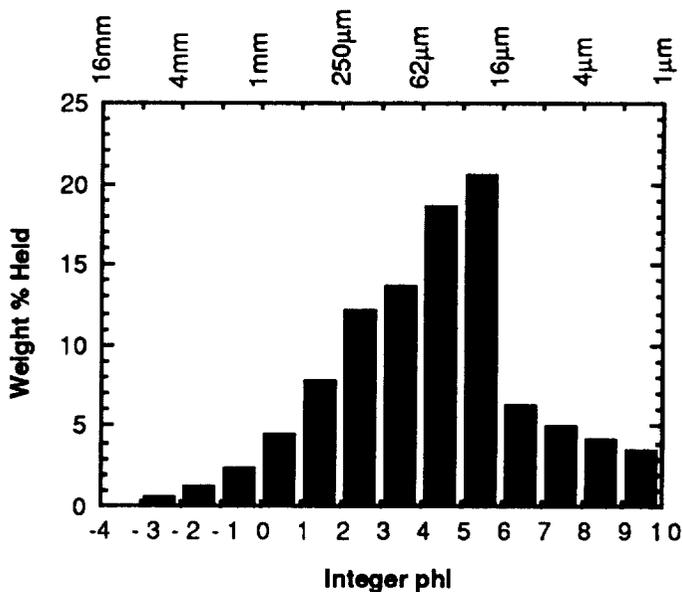
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.49
2000.00	1.08
1000.00	2.27
841.00	0.62
420.00	5.32
250.00	6.16
177.00	5.56
150.00	2.96
125.00	3.62
105.00	4.13
74.00	6.66
53.00	5.40
44.00	4.55
37.00	5.22
30.00	7.53
20.00	16.00
10.00	7.03
1.00	14.40

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	4.37
Median:	4.57
Mode:	5.50
Sorting:	2.41
Skewness:	-0.06
Kurtosis:	1.26

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.41
16	2.01
25	2.78
50	4.57
75	5.53
84	6.54
95	8.87



14260 Sample Environment

AS14-67-9388

Pre-sampling. Skim from  
within the 4 meter circle  
drawn.

**Soil: 14260**  
(subsample 14260,4)  
D.S. McKay PI

**LOCATION COMMENTS:**

Surface soil sample is part of comprehensive sample collected 110 WNW of LM with 14165-14189, 14250-14289, 14298-14300 and 14421. All samples, including many walnut sized rocks were collected within a 4 m circle drawn by astronaut Shepard. 14260 was collected from the top 1 cm of an undisturbed region within this circle. Area is generally level and free of boulders.

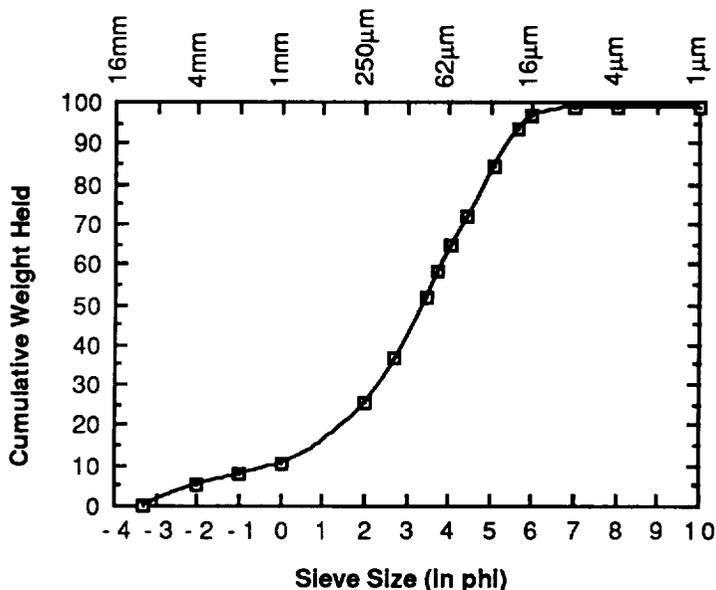
**MATURITY INDEX:**

$I_s/FeO = 72$  (mature)

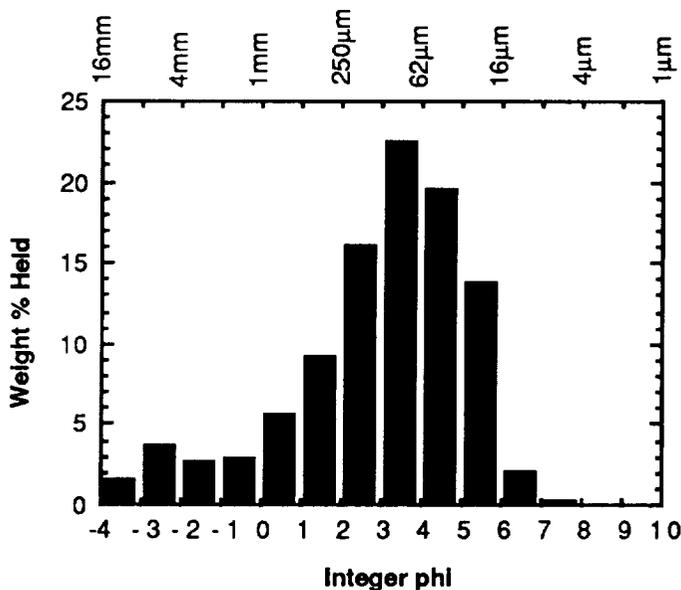
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	5.08
2000.00	2.56
1000.00	2.85
250.00	14.73
150.00	11.07
90.00	15.40
75.00	6.43
60.00	6.69
45.00	6.96
30.00	12.50
20.00	9.38
15.60	3.17
7.80	1.90
3.90	0.24
1.00	0.04

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

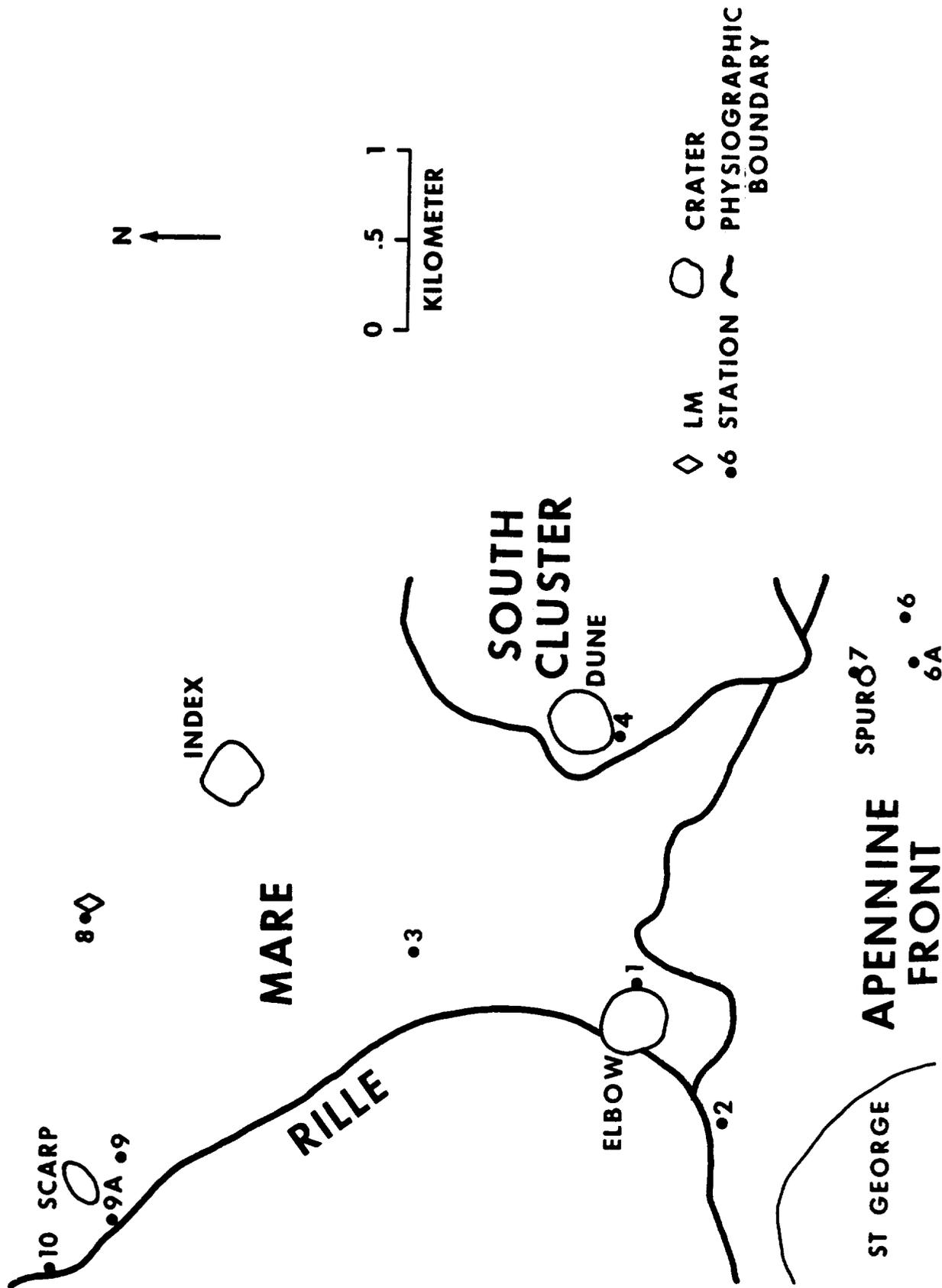
Mean:	3.15
Median:	3.40
Mode:	3.50
Sorting:	2.19
Skewness:	-0.29
Kurtosis:	1.20

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.03
16	1.01
25	1.98
50	3.40
75	4.63
84	5.04
95	5.78

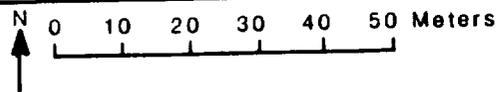
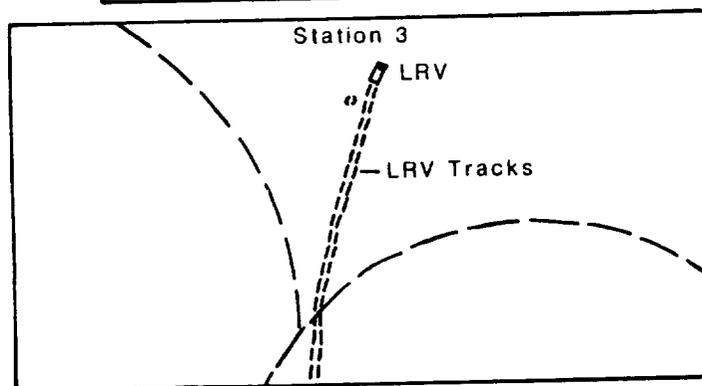
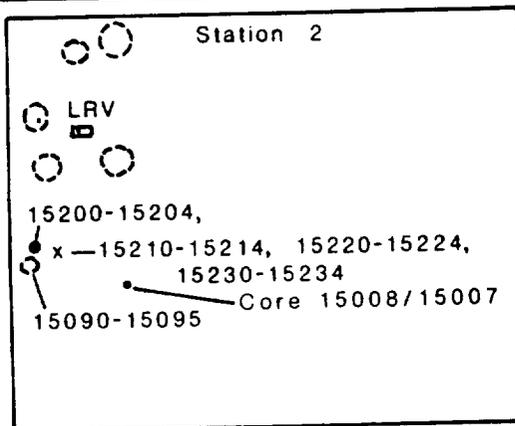
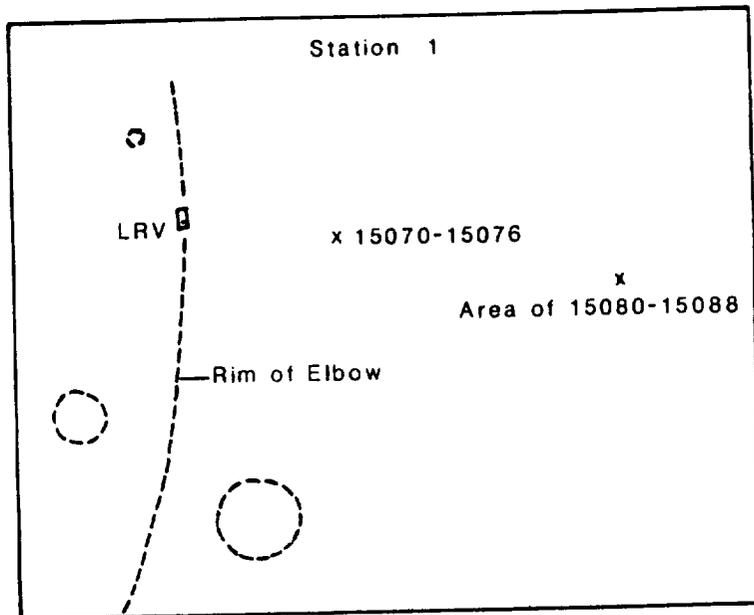






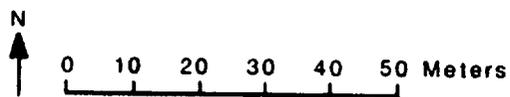
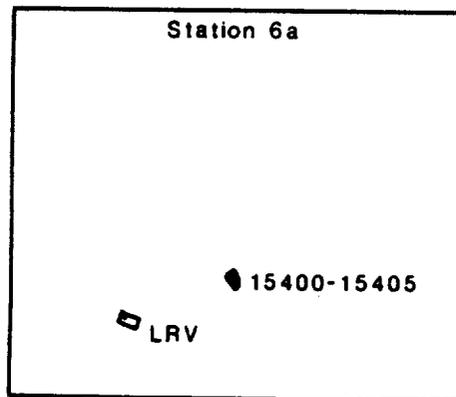
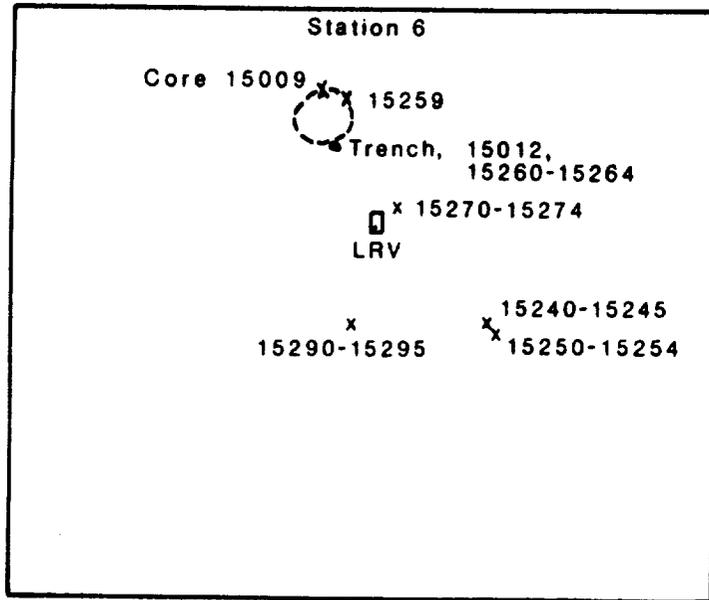
Map of Apollo 15 area  
from the Handbook of Lunar Soils.

EVA I



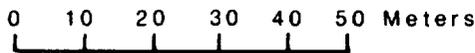
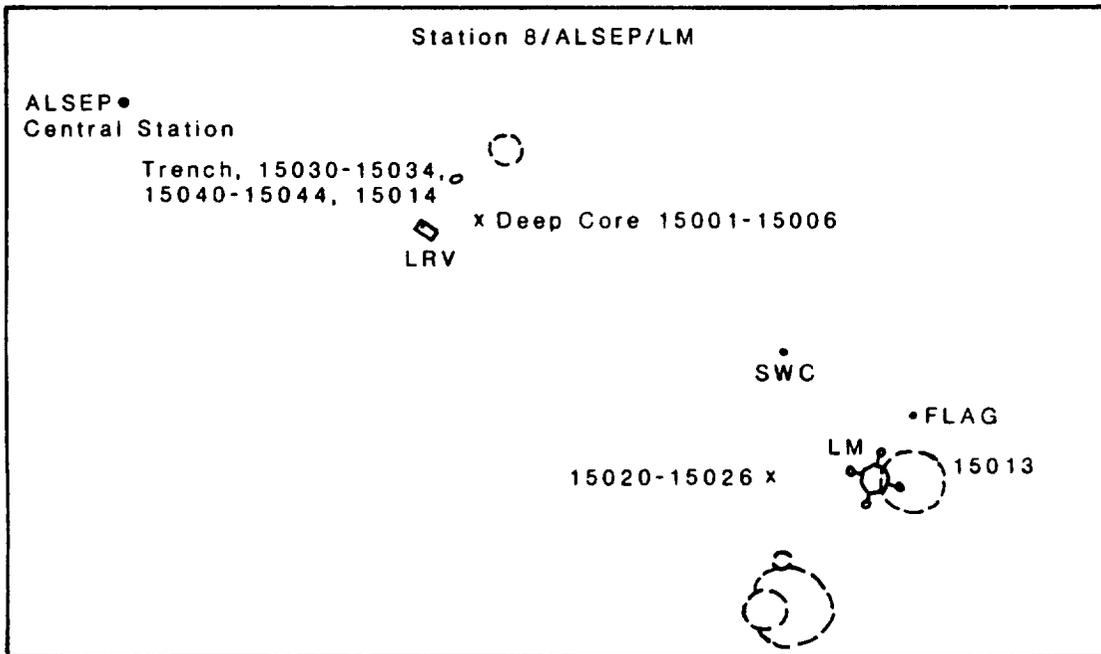
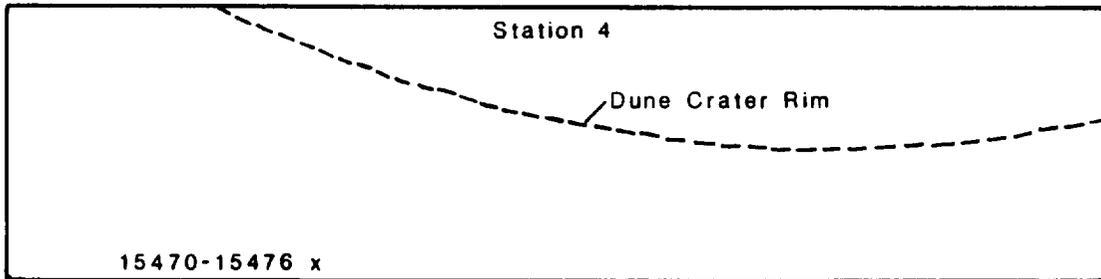
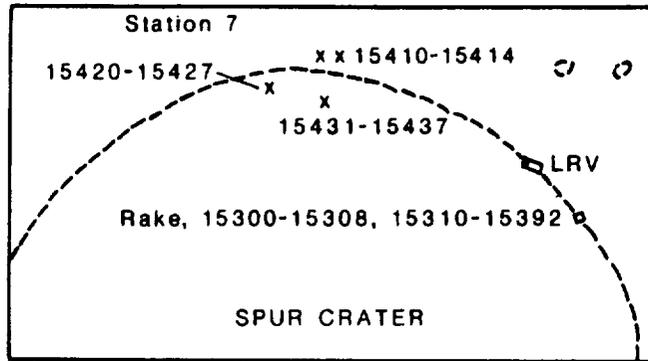
EVA I - sample sites  
from the Handbook of Lunar Soils.

EVA II

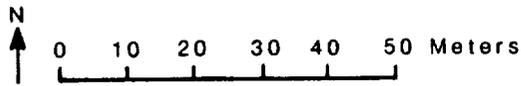
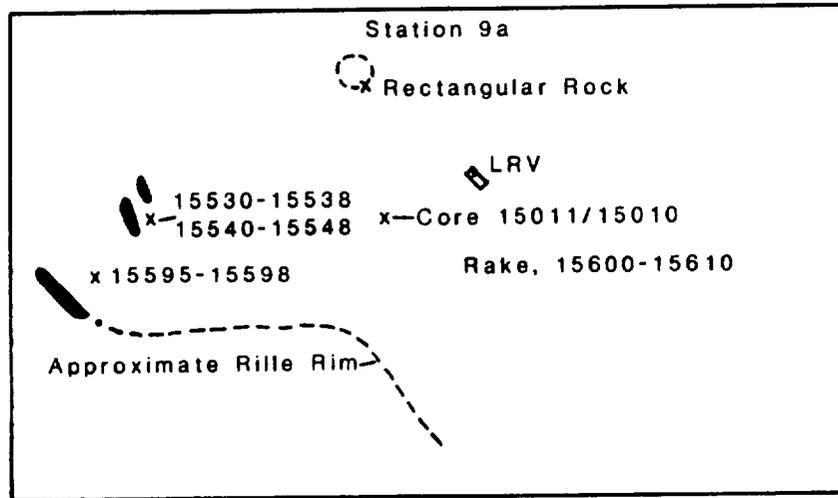
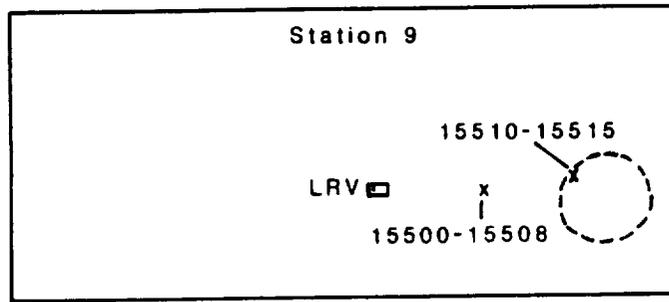


**EVA II - sample sites**  
from the Handbook of Lunar Soils.

EVA II



EVA II - sample sites  
from the Handbook of Lunar Soils.

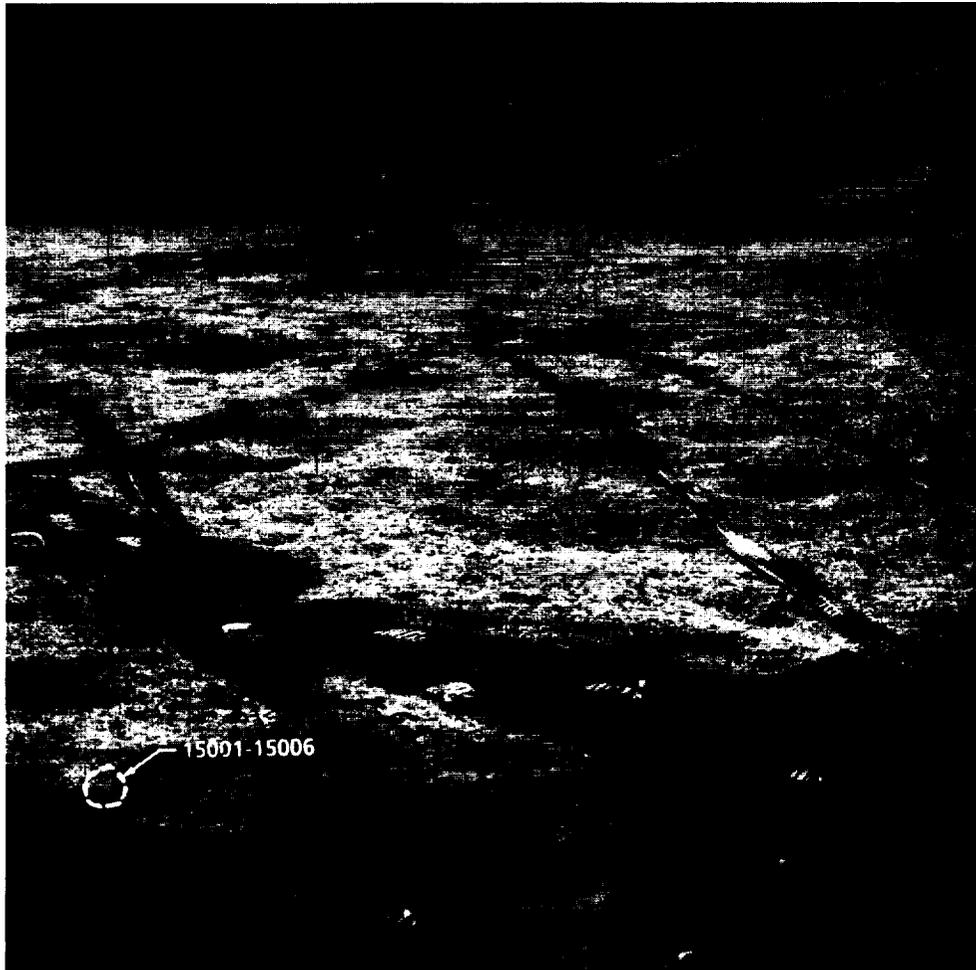


**EXPLANATION FOR STATION MAPS**

- x or • Location of sample containers
-  LRV, dot shows TV camera
-  Large rocks
-  Crater rims
- ALSEP Apollo lunar surface experiments package

EVA III - sample sites  
from the Handbook of Lunar Soils.

ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



Core 15001 - 15006  
Sample Environment

AS15-92-12430

Pre-sampling. SWC and  
LM in background.

# Soil: 15001

(subsample 15001,28) (Core: depth from surface, 236.1 - 236.5 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 meters southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

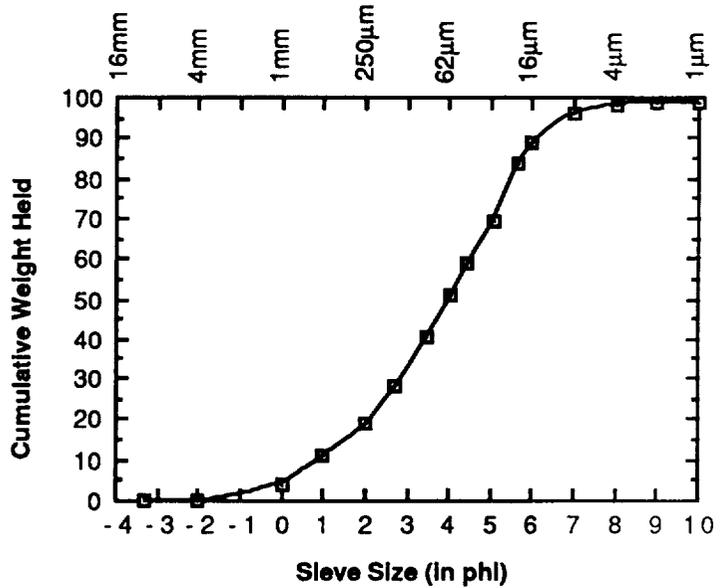
## MATURITY INDEX:

$I_g/FeO = 17$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
1000.00	4.23
500.00	6.89
250.00	7.57
150.00	9.45
90.00	12.34
60.00	10.49
45.00	8.10
30.00	10.49
20.00	14.04
15.60	5.51
7.80	6.90
3.90	2.18
2.00	0.67
1.00	0.15

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



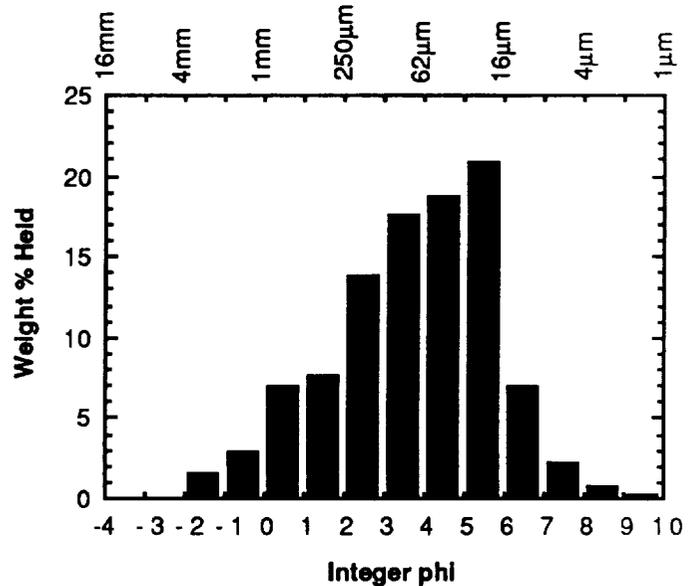
## GRAPHIC AND MOMENT MEASURES

Mean:	3.78
Median:	4.01
Mode:	5.50
Sorting:	2.00
Skewness:	-0.17
Kurtosis:	0.97

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.14
16	1.67
25	2.51
50	4.01
75	5.29
84	5.67
95	6.73

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15001

(subsample 15001,265) (Core: depth from surface, 228.2-229.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

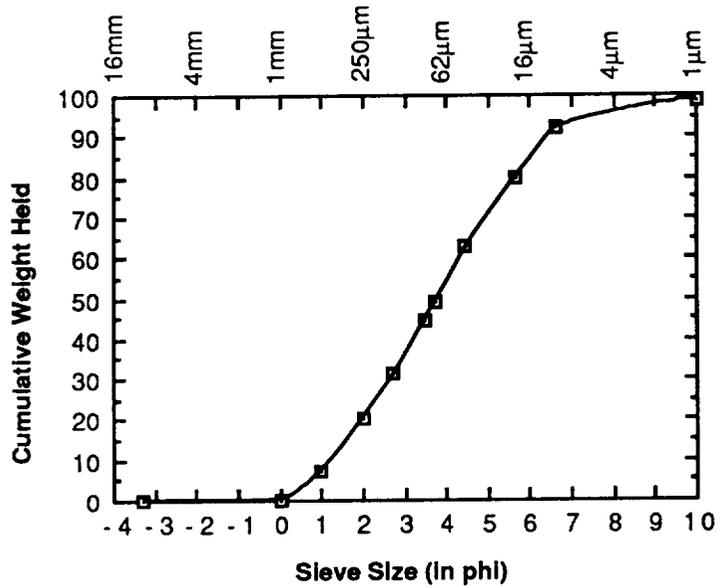
## MATURITY INDEX:

$I_g/FeO = 17$  (immature)

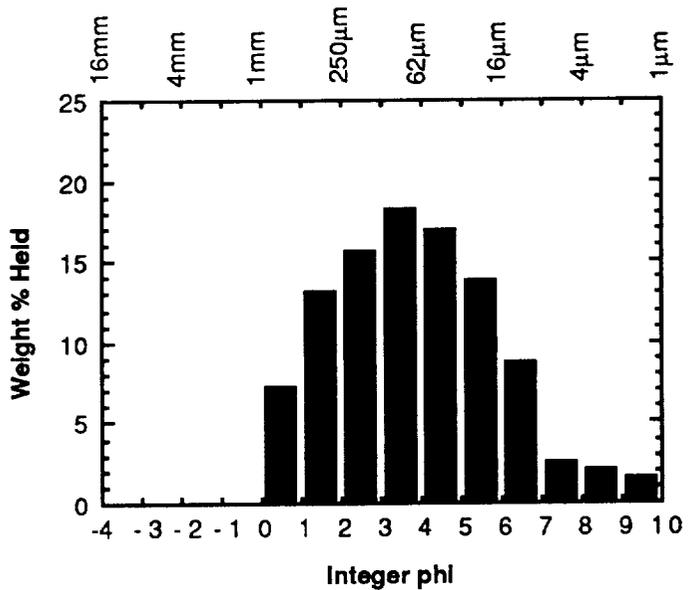
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	7.27
250.00	13.13
150.00	10.93
90.00	13.13
75.00	4.81
45.00	13.34
20.00	17.31
10.00	12.27
1.00	6.83

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	3.81
Median:	3.78
Mode:	3.50
Sorting:	2.13
Skewness:	0.08
Kurtosis:	0.97

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.74
16	1.69
25	2.32
50	3.78
75	5.29
84	5.95
95	7.75

# Soil: 15001

(subsample 15001,266) (Core: depth from surface, 216.7 -217.2 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

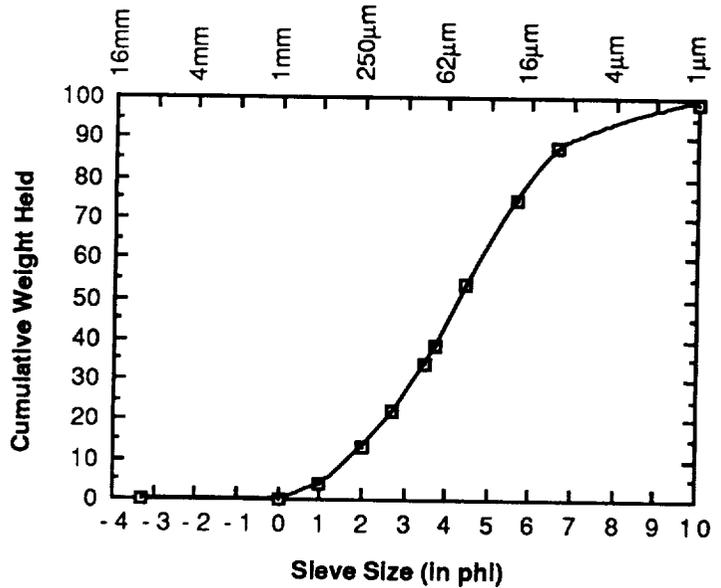
## MATURITY INDEX:

$I_p/FeO = 19$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	4.02
250.00	8.97
150.00	9.08
90.00	11.61
75.00	4.58
45.00	15.16
20.00	21.07
10.00	13.05
1.00	11.47

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



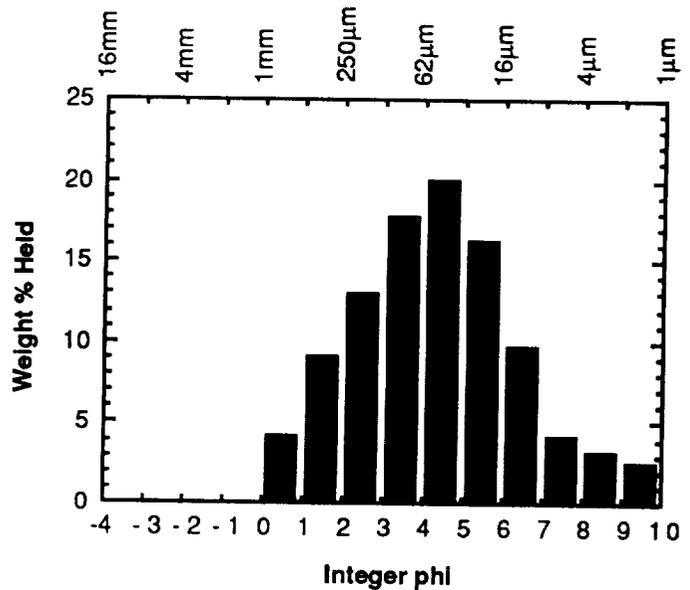
## GRAPHIC AND MOMENT MEASURES

Mean:	4.29
Median:	4.30
Mode:	4.50
Sorting:	2.13
Skewness:	0.07
Kurtosis:	1.10

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.16
16	2.27
25	2.94
50	4.30
75	5.68
84	6.31
95	8.54

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15001

(subsample 15001,269) (Core: depth from surface, 206.7 -207.2 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

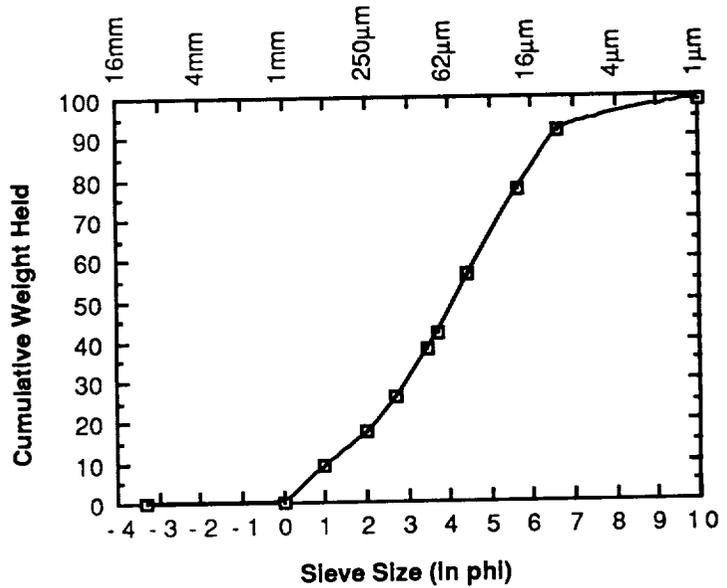
## MATURITY INDEX:

$I_s/FeO = 33$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	8.99
250.00	8.40
150.00	8.59
90.00	12.07
75.00	4.09
45.00	14.13
20.00	20.85
10.00	14.67
1.00	7.22

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



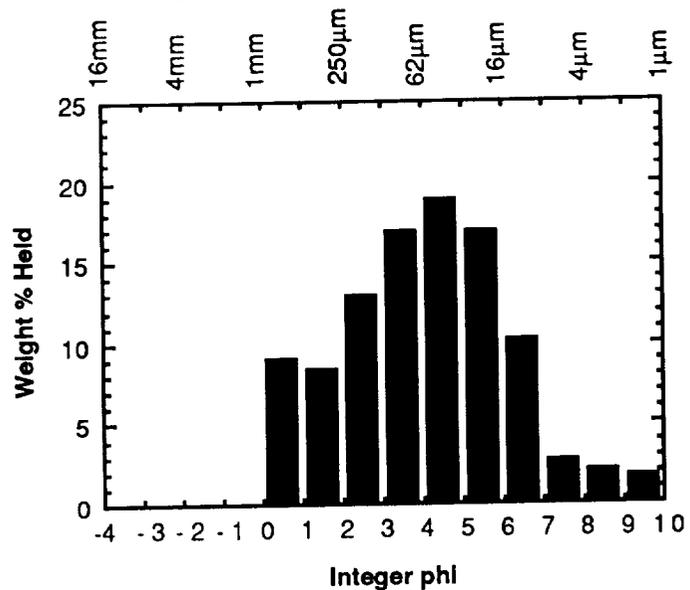
## GRAPHIC AND MOMENT MEASURES

Mean:	4.02
Median:	4.15
Mode:	4.50
Sorting:	2.17
Skewness:	-0.03
Kurtosis:	1.05

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.55
16	1.84
25	2.66
50	4.15
75	5.51
84	6.08
95	7.86

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15001

(subsample 15001,270) (Core: depth from surface, 205.2-205.7 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

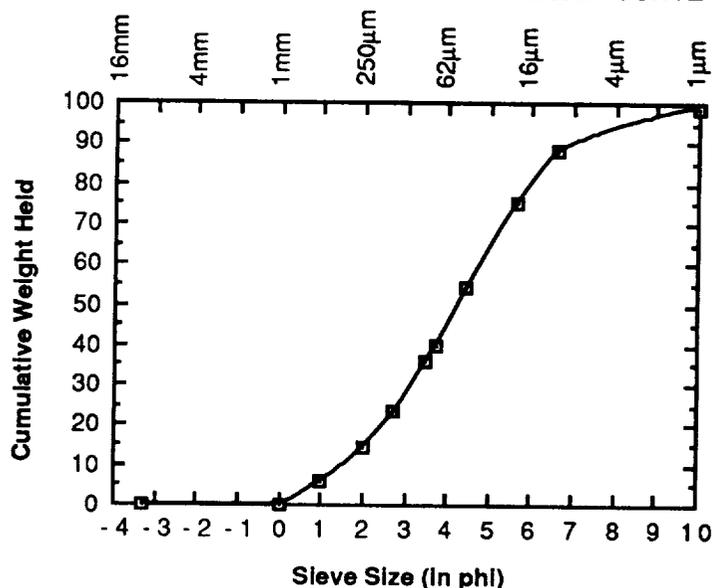
## MATURITY INDEX:

$I_p/FeO = 35$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	6.07
250.00	8.22
150.00	9.23
90.00	12.17
75.00	4.37
45.00	14.19
20.00	20.90
10.00	13.36
1.00	10.51

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



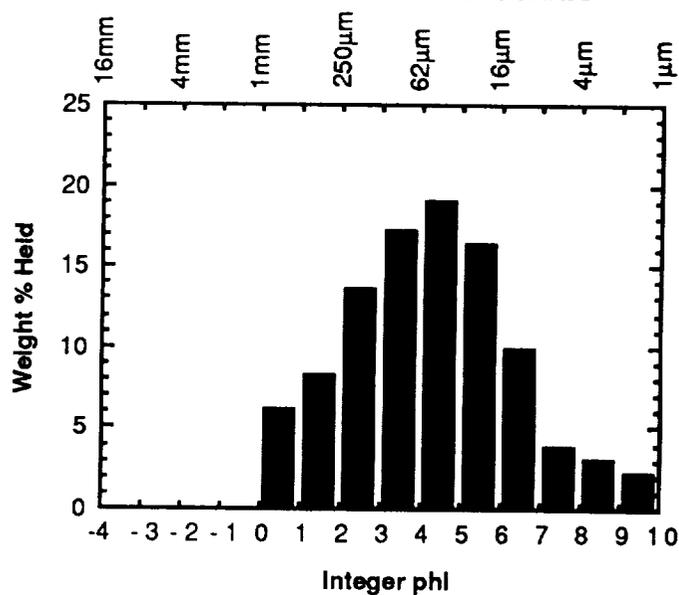
## GRAPHIC AND MOMENT MEASURES

Mean:	4.22
Median:	4.25
Mode:	4.50
Sorting:	2.17
Skewness:	0.04
Kurtosis:	1.11

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.84
16	2.16
25	2.83
50	4.25
75	5.64
84	6.25
95	8.43

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15002

(subsample 15002,17) (Core: depth from surface, 199.9-200.3 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

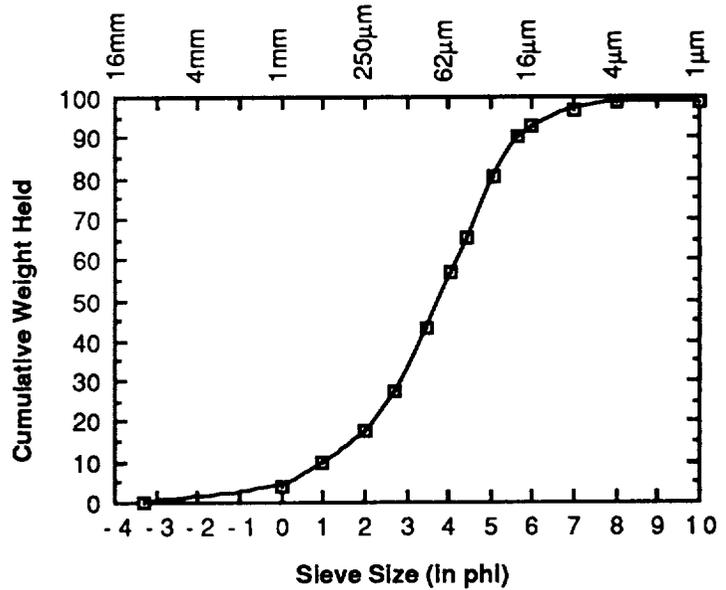
## MATURITY INDEX:

$I_s/FeO = 34$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	4.02
500.00	5.74
250.00	7.58
150.00	9.93
90.00	15.84
60.00	13.80
45.00	8.58
30.00	14.90
20.00	9.57
15.60	2.53
7.80	4.37
3.90	1.63
1.00	0.50

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



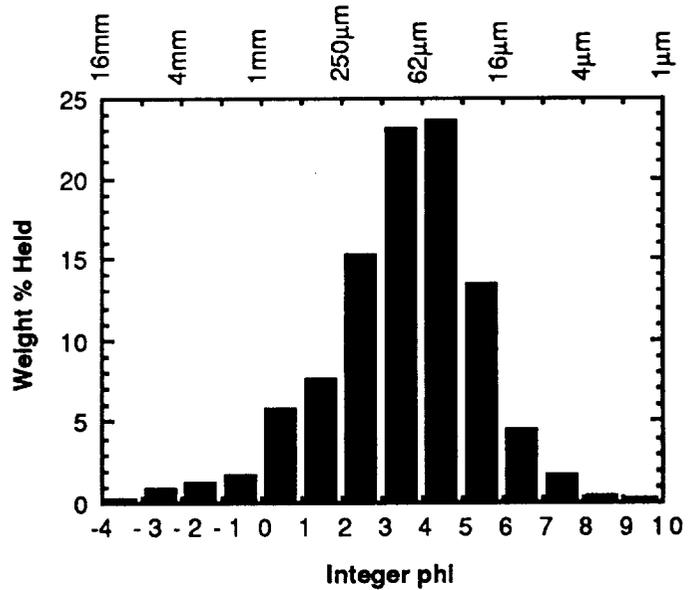
## GRAPHIC AND MOMENT MEASURES

Mean:	3.62
Median:	3.77
Mode:	4.50
Sorting:	1.79
Skewness:	-0.13
Kurtosis:	1.14

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.24
16	1.85
25	2.59
50	3.77
75	4.84
84	5.25
95	6.47

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15002

(subsample 15002,24) (Core: depth from surface, 199.1-199.6 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

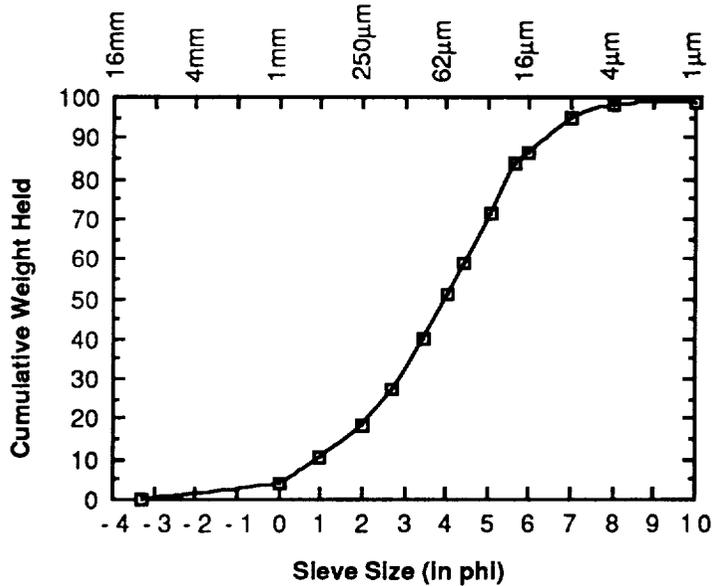
## MATURITY INDEX:

$I_g/FeO = 34$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	3.71
500.00	6.80
250.00	7.91
150.00	8.87
90.00	12.70
60.00	11.14
45.00	7.76
30.00	12.18
20.00	12.49
15.60	2.99
7.80	8.35
3.90	3.02
1.00	1.08

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



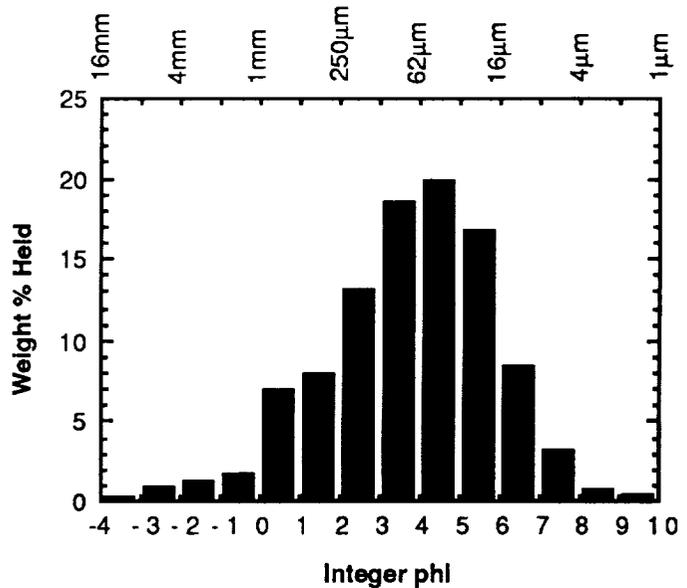
## GRAPHIC AND MOMENT MEASURES

Mean:	3.81
Median:	4.00
Mode:	4.50
Sorting:	2.02
Skewness:	-0.13
Kurtosis:	1.04

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.24
16	1.72
25	2.57
50	4.00
75	5.24
84	5.70
95	7.03

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15002

(subsample 15002,327) (Core: depth from surface, 195.4-195.9 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

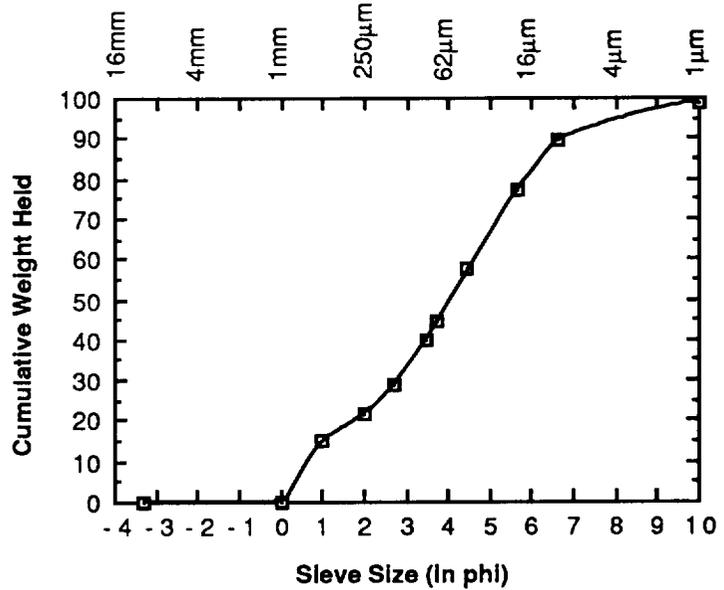
## MATURITY INDEX:

$I_s/FeO = 40$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	15.06
250.00	6.58
150.00	7.31
90.00	11.11
75.00	4.28
45.00	12.96
20.00	19.74
10.00	12.52
1.00	9.45

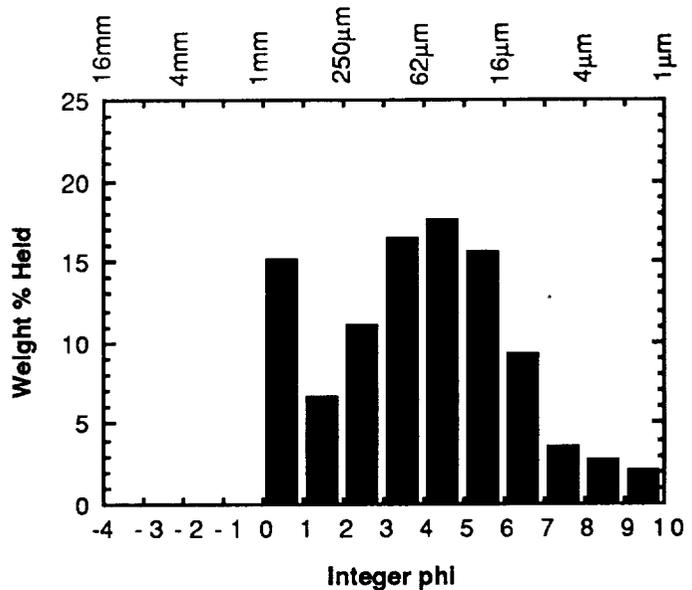
## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## GRAPHIC AND MOMENT MEASURES

Mean:	3.78
Median:	4.06
Mode:	4.50
Sorting:	2.43
Skewness:	-0.04
Kurtosis:	1.01

## SIZE DISTRIBUTION HISTOGRAM



## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.53
16	1.13
25	2.37
50	4.06
75	5.51
84	6.15
95	8.27

**Soil: 15002**  
 (subsample 15002,329) (Core: depth from surface, 186.4-186.9 cm)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

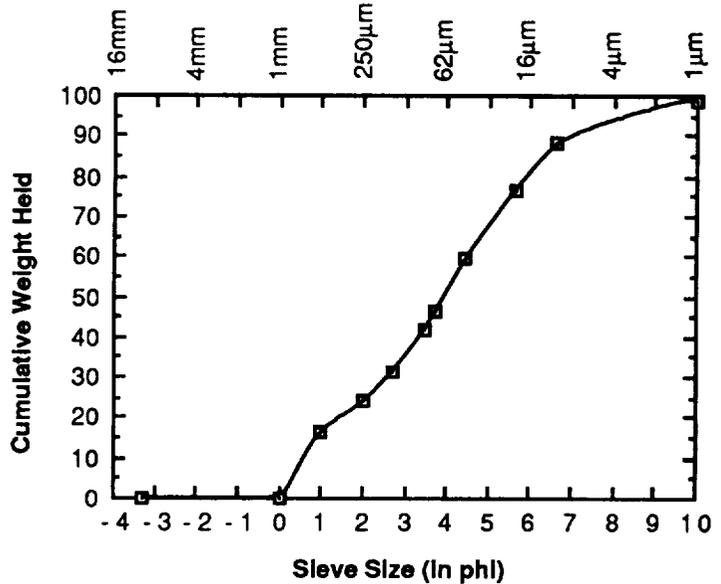
**MATURITY INDEX:**

$I_3/FeO = 40$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	16.40
250.00	7.57
150.00	7.63
90.00	10.36
75.00	4.12
45.00	13.34
20.00	17.16
10.00	11.53
1.00	10.89

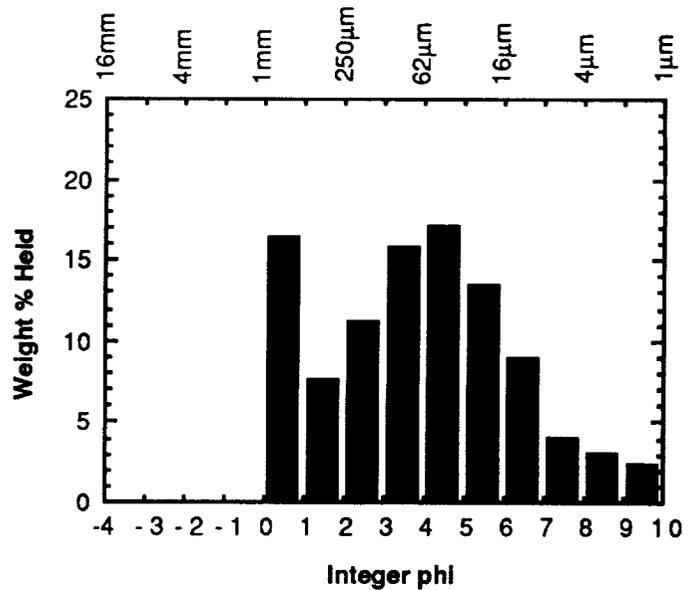
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.72
Median:	3.96
Mode:	4.50
Sorting:	2.52
Skewness:	-0.00
Kurtosis:	0.96

**SIZE DISTRIBUTION HISTOGRAM**



**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.52
16	0.96
25	2.11
50	3.96
75	5.52
84	6.24
95	8.47

# Soil: 15002

(subsample 15002,331) (Core: depth from surface, 178.9-179.4 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

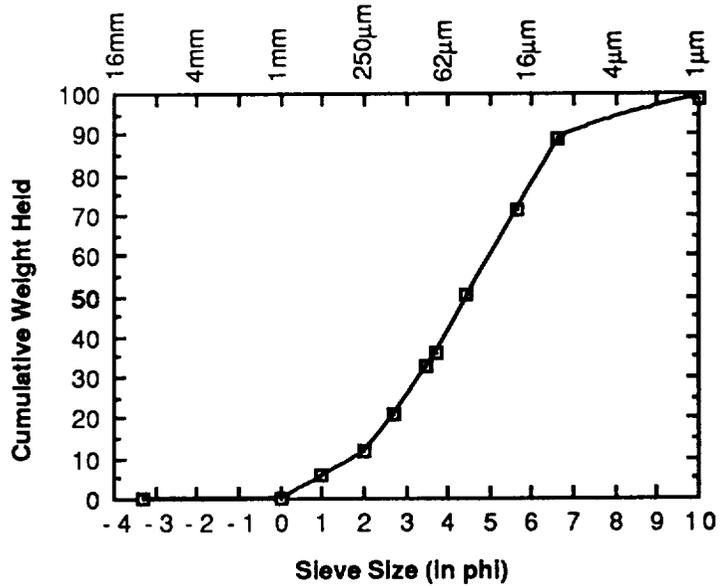
## MATURITY INDEX:

$I_s/FeO = 42$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	5.58
250.00	6.18
150.00	9.42
90.00	11.18
75.00	3.84
45.00	14.01
20.00	21.19
10.00	17.61
1.00	9.99

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



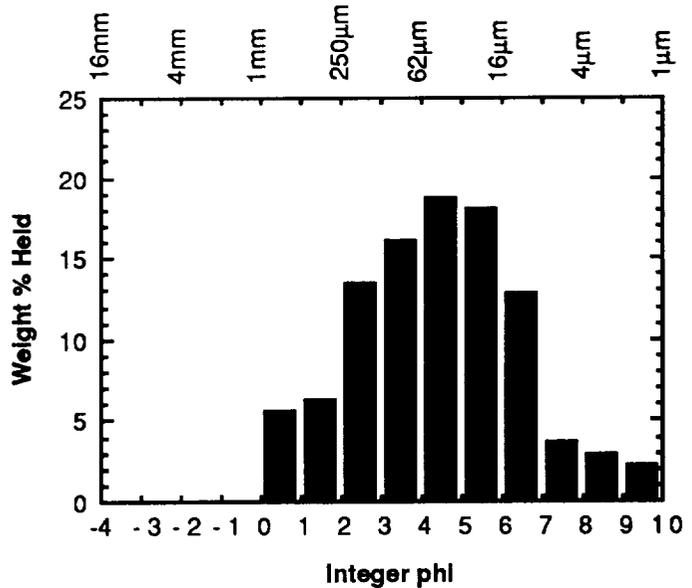
## GRAPHIC AND MOMENT MEASURES

Mean:	4.39
Median:	4.46
Mode:	4.50
Sorting:	2.13
Skewness:	-0.00
Kurtosis:	1.07

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.90
16	2.36
25	2.99
50	4.46
75	5.85
84	6.35
95	8.38

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15002

(subsample 15002,333) (Core: depth from surface, 167.9-168.4 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

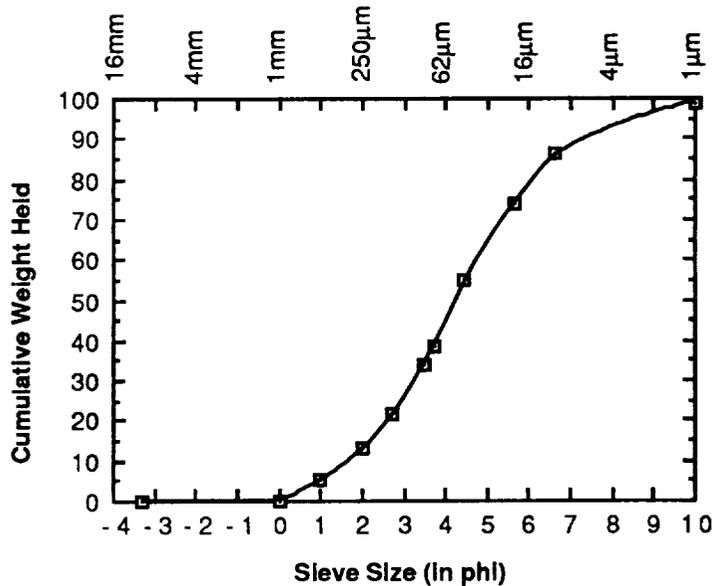
## MATURITY INDEX:

$I_s/FeO = 46$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	5.17
250.00	7.76
150.00	8.54
90.00	12.49
75.00	4.91
45.00	16.14
20.00	18.65
10.00	12.38
1.00	12.96

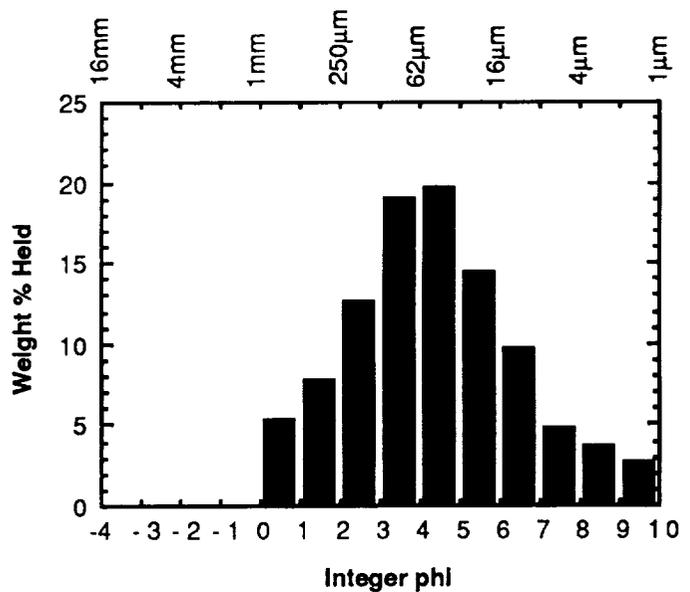
## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## GRAPHIC AND MOMENT MEASURES

Mean:	4.32
Median:	4.24
Mode:	4.50
Sorting:	2.20
Skewness:	0.11
Kurtosis:	1.14

## SIZE DISTRIBUTION HISTOGRAM



## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.97
16	2.30
25	2.97
50	4.24
75	5.74
84	6.43
95	8.69

# Soil: 15003

(subsample 15003,19) (Core: depth from surface, 160.6 - 161.1 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

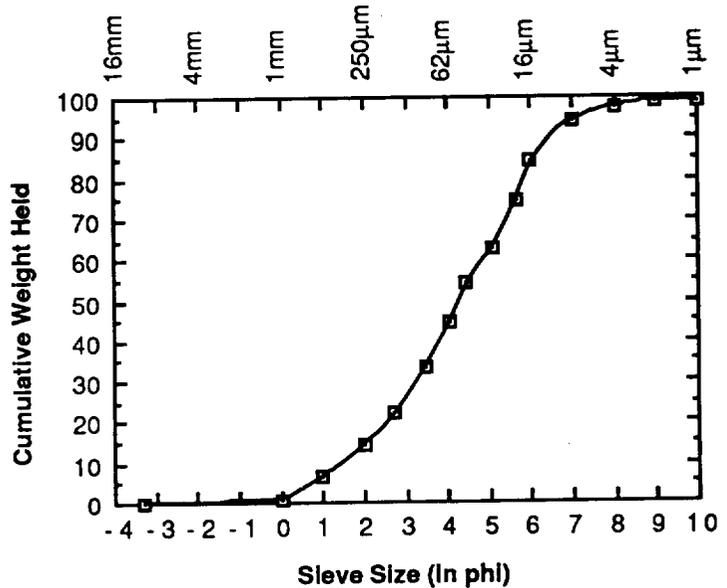
## MATURITY INDEX:

$I_g/FeO = 30$  (submature)

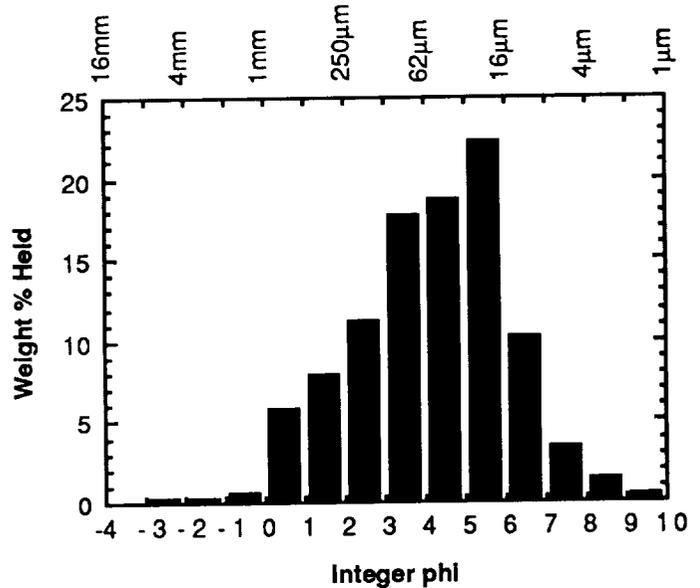
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.90
500.00	5.65
250.00	7.90
150.00	7.53
90.00	11.40
60.00	11.13
45.00	9.97
30.00	8.26
20.00	12.09
15.60	9.32
7.80	10.05
3.90	3.19
2.00	1.31
1.00	0.31

CUMULATIVE WEIGHT DISTRIBUTION CURVE



SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	4.15
Median:	4.29
Mode:	5.50
Sorting:	1.93
Skewness:	-0.10
Kurtosis:	0.98

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.76
16	2.17
25	2.96
50	4.29
75	5.65
84	5.99
95	7.21

# Soil: 15003

(subsample 15003,26) (Core: depth from surface, 159.9-160.4 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

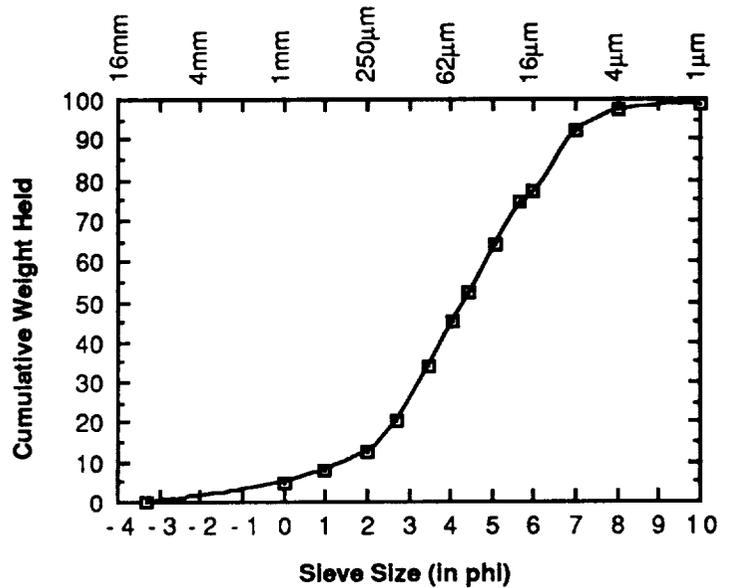
## MATURITY INDEX:

$I_p/FeO = 30$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	4.68
500.00	3.30
250.00	4.63
150.00	7.97
90.00	13.63
60.00	11.11
45.00	6.97
30.00	11.93
20.00	9.97
15.60	2.93
7.80	15.32
3.90	4.63
1.00	1.93

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



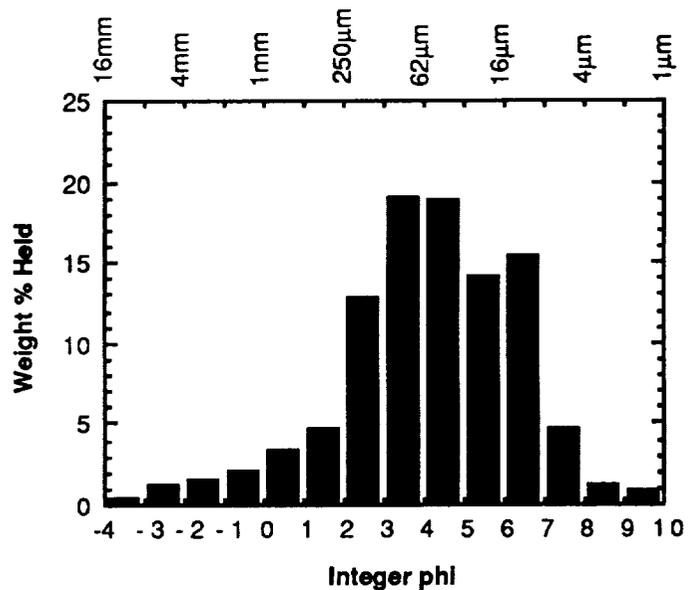
## GRAPHIC AND MOMENT MEASURES

Mean:	4.39
Median:	4.34
Mode:	3.50
Sorting:	2.14
Skewness:	-0.05
Kurtosis:	1.09

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.13
16	2.37
25	2.98
50	4.34
75	5.74
84	6.48
95	7.47

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15003

(subsample 15003,321) (Core: depth from surface, 143.7-144.2 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

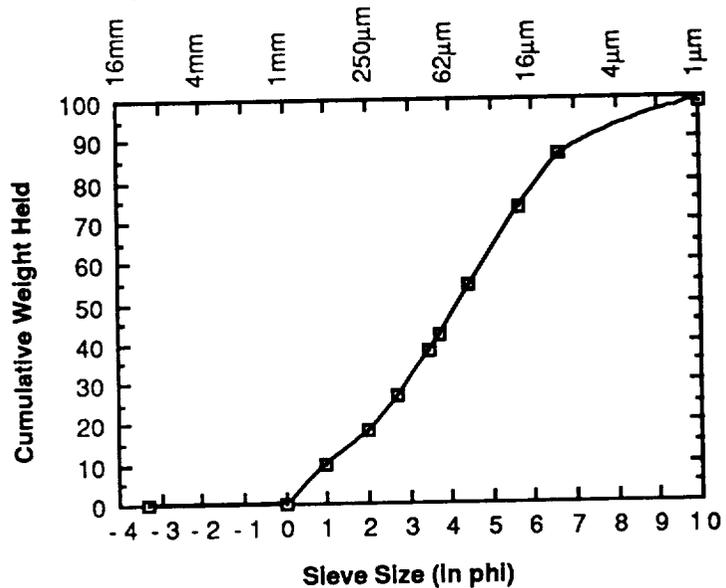
## MATURITY INDEX:

$I_s/FeO = 25$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	10.04
250.00	7.99
150.00	8.80
90.00	10.98
75.00	3.99
45.00	12.43
20.00	18.85
10.00	13.06
1.00	12.87

CUMULATIVE WEIGHT DISTRIBUTION CURVE



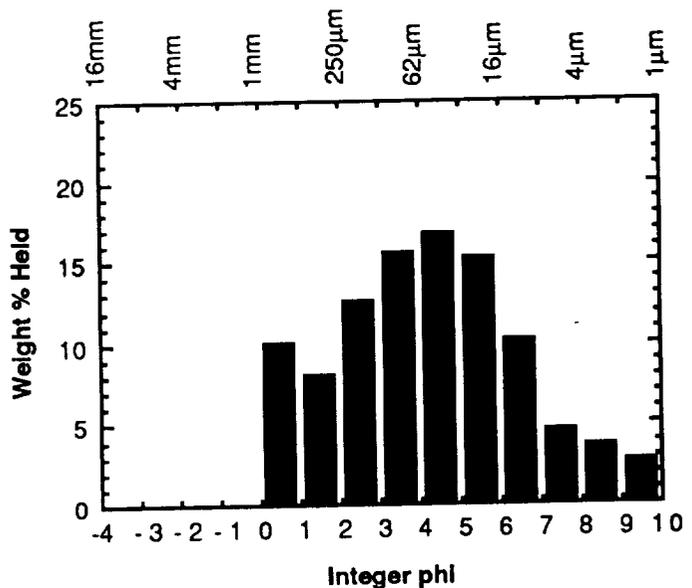
## GRAPHIC AND MOMENT MEASURES

Mean:	4.14
Median:	4.22
Mode:	4.50
Sorting:	2.41
Skewness:	0.02
Kurtosis:	1.05

## MOMENT MEASURE DATA

Wt % held	$\emptyset$ size
5	0.50
16	1.76
25	2.60
50	4.22
75	5.78
84	6.43
95	8.68

SIZE DISTRIBUTION HISTOGRAM



# Soil: 15003

(subsample 15003,322) (Core: depth from surface, 141.7-142.2 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

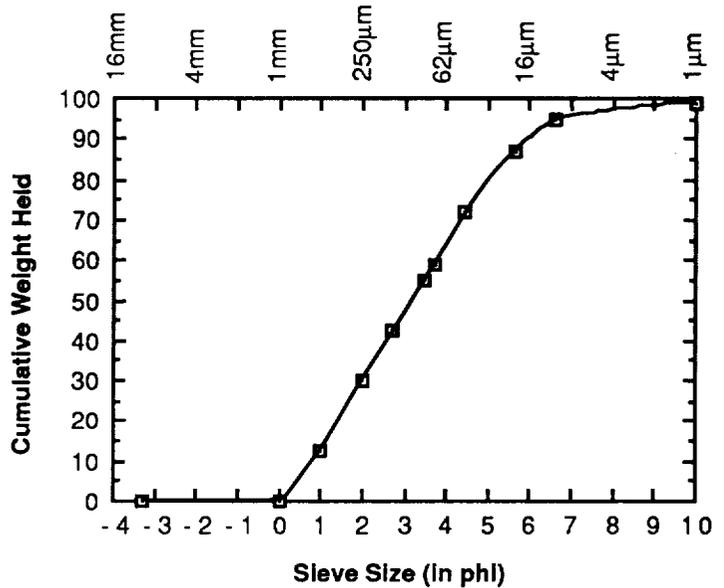
## MATURITY INDEX:

$I_s/FeO = 18$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	12.48
250.00	17.84
150.00	11.86
90.00	12.55
75.00	4.29
45.00	13.03
20.00	15.20
10.00	7.47
1.00	4.28

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



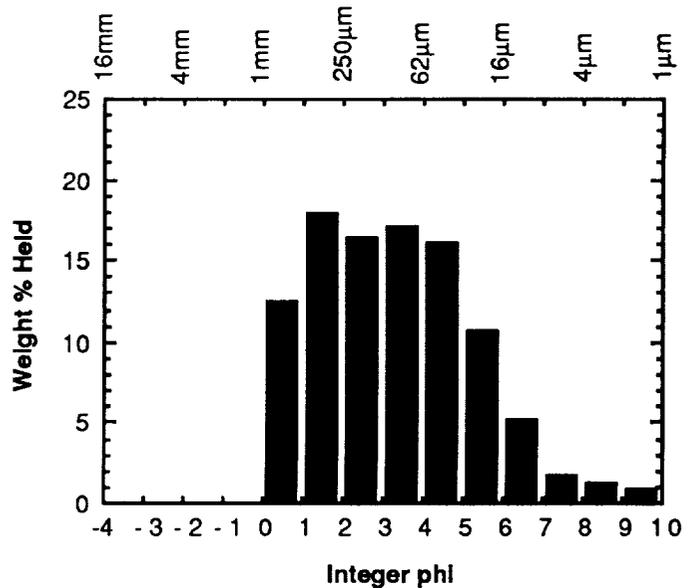
## GRAPHIC AND MOMENT MEASURES

Mean:	3.25
Median:	3.19
Mode:	1.50
Sorting:	1.98
Skewness:	0.09
Kurtosis:	0.87

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.47
16	1.21
25	1.69
50	3.19
75	4.67
84	5.33
95	6.78

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15003

(subsample 15003,324) (Core: depth from surface, 131.2-131.7 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

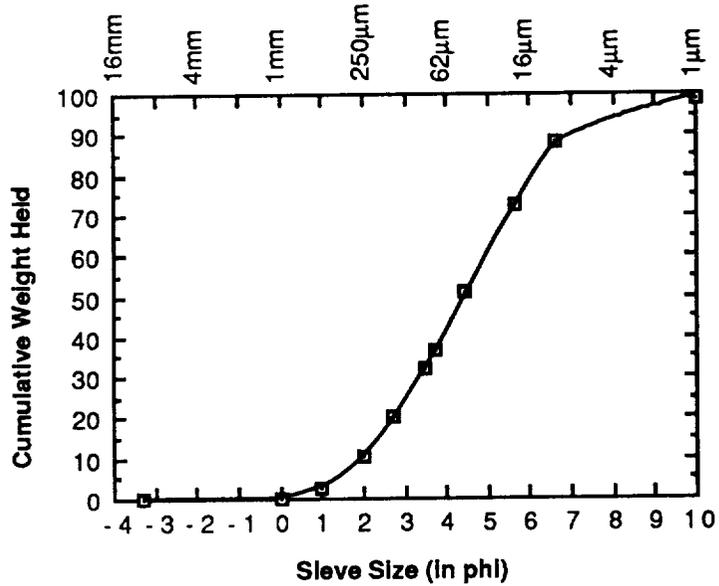
## MATURITY INDEX:

$I_p/FeO = 46$  (submature)

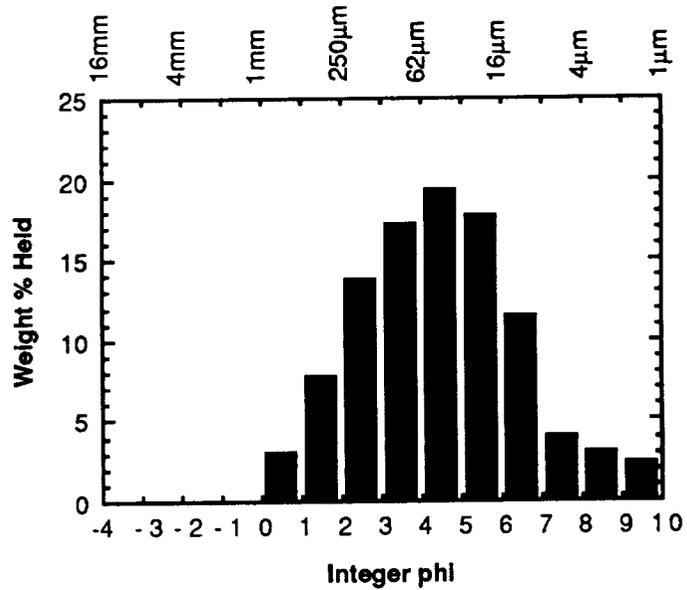
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	2.92
250.00	7.70
150.00	9.39
90.00	12.25
75.00	4.06
45.00	14.33
20.00	21.68
10.00	15.75
1.00	10.91

CUMULATIVE WEIGHT DISTRIBUTION CURVE



SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	4.41
Median:	4.44
Mode:	4.50
Sorting:	2.05
Skewness:	0.06
Kurtosis:	1.06

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.36
16	2.45
25	3.04
50	4.44
75	5.80
84	6.34
95	8.49

# Soil: 15004

(subsample 15004,24) (Core: depth from surface, 121.2 - 121.7 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

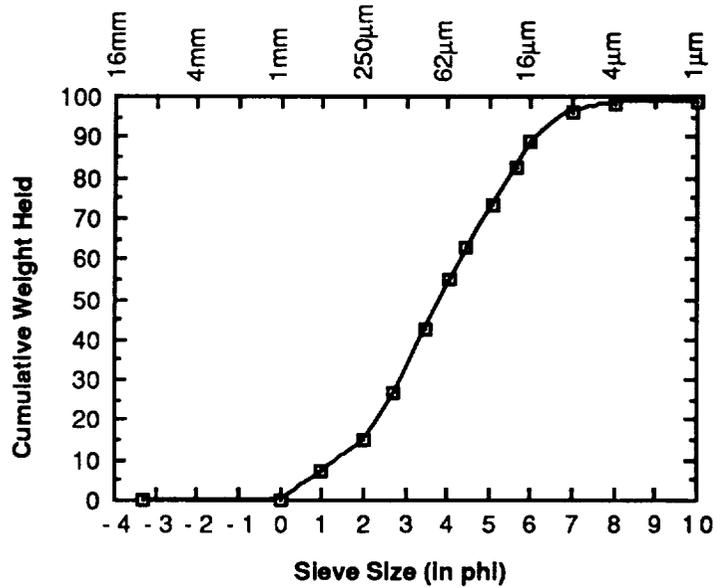
## MATURITY INDEX:

$I_g/FeO = 38$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	7.25
250.00	7.91
150.00	11.70
90.00	15.64
60.00	12.18
45.00	8.06
30.00	10.57
20.00	9.06
15.60	6.45
7.80	7.51
3.90	2.01
1.00	0.66

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



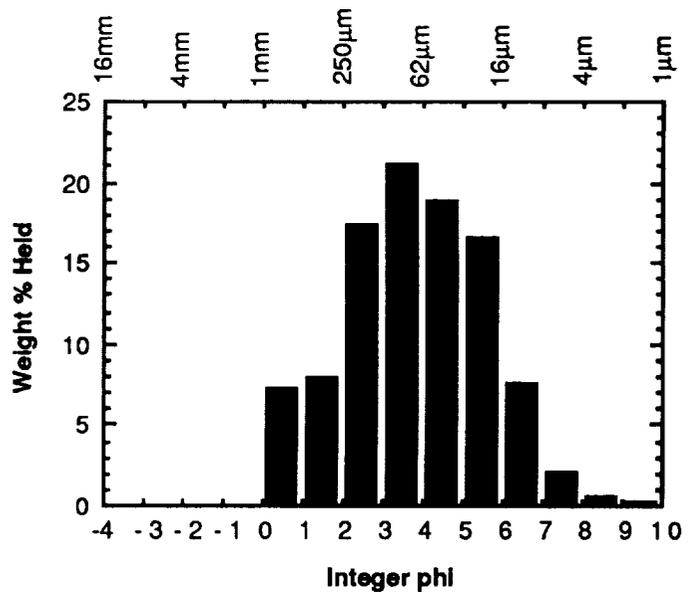
## GRAPHIC AND MOMENT MEASURES

Mean:	3.88
Median:	3.83
Mode:	3.50
Sorting:	1.82
Skewness:	-0.00
Kurtosis:	0.97

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.70
16	2.08
25	2.63
50	3.83
75	5.16
84	5.74
95	6.67

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15004

(subsample 15004,17) (Core: depth from surface, 120.4 - 120.9 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

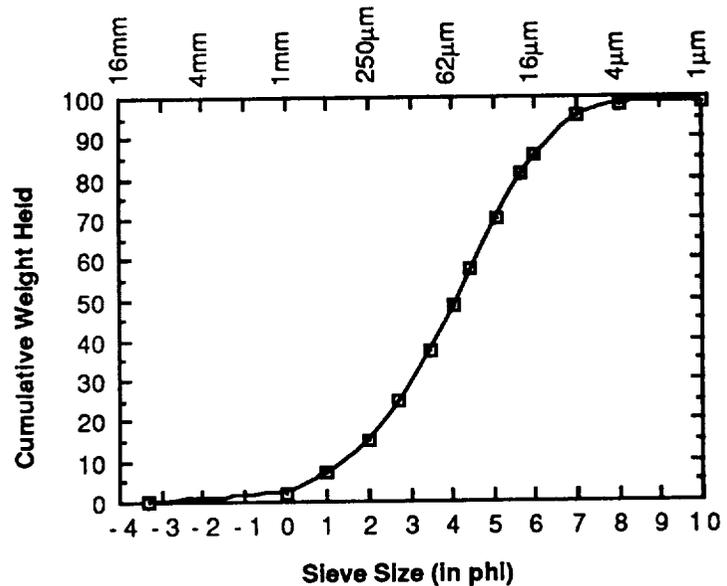
## MATURITY INDEX:

$I_g/FeO = 37$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	2.24
500.00	4.96
250.00	7.90
150.00	9.47
90.00	12.58
60.00	11.29
45.00	9.30
30.00	12.41
20.00	10.63
15.60	4.60
7.80	9.96
3.90	2.83
1.00	0.82

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



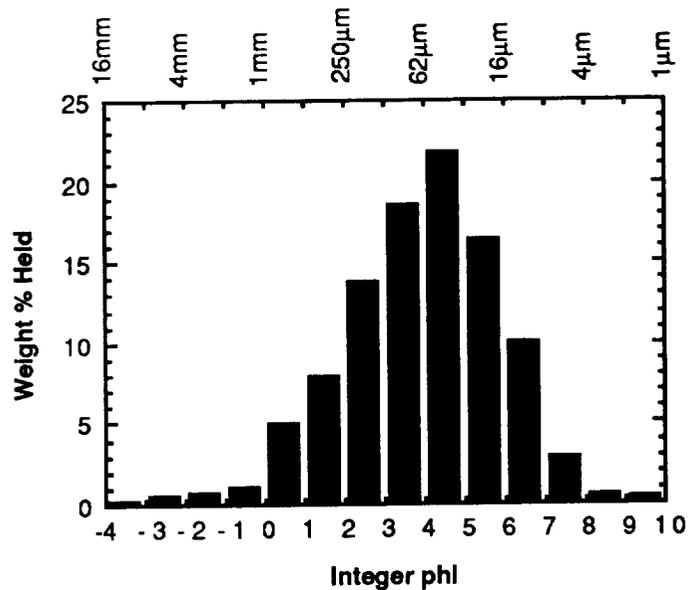
## GRAPHIC AND MOMENT MEASURES

Mean:	4.04
Median:	4.13
Mode:	4.50
Sorting:	1.90
Skewness:	-0.09
Kurtosis:	1.02

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.62
16	2.09
25	2.77
50	4.13
75	5.31
84	5.89
95	6.92

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15004

(subsample 15004,131) (Core: depth from surface, 104.4 - 104.9 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

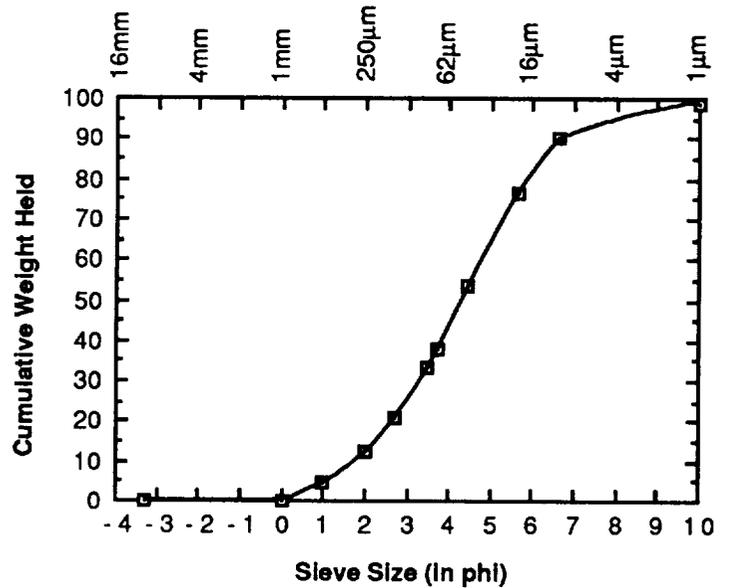
## MATURITY INDEX:

$I_g/FeO = 40$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	4.62
250.00	7.61
150.00	8.92
90.00	11.86
75.00	4.92
45.00	15.84
20.00	22.55
10.00	13.72
1.00	8.96

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



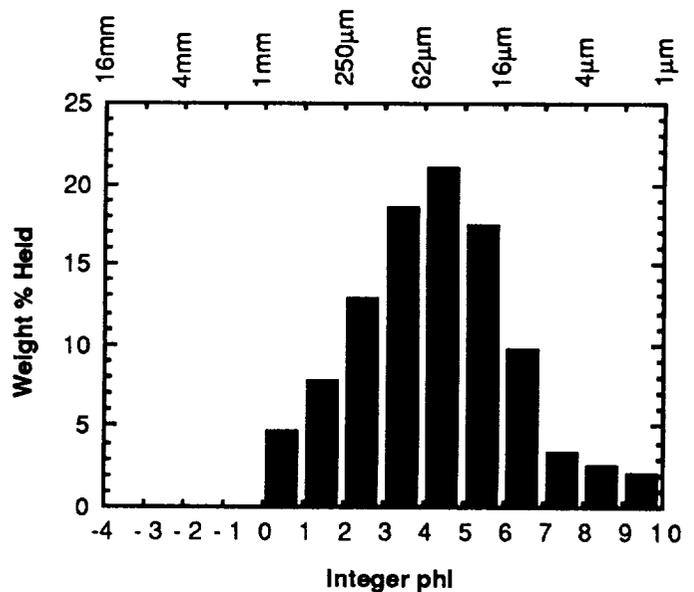
## GRAPHIC AND MOMENT MEASURES

Mean:	4.26
Median:	4.29
Mode:	4.50
Sorting:	2.03
Skewness:	0.03
Kurtosis:	1.14

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.07
16	2.34
25	3.00
50	4.29
75	5.56
84	6.15
95	8.20

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15004

(subsample 15004,132) (Core: depth from surface, 95.9 - 96.4 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

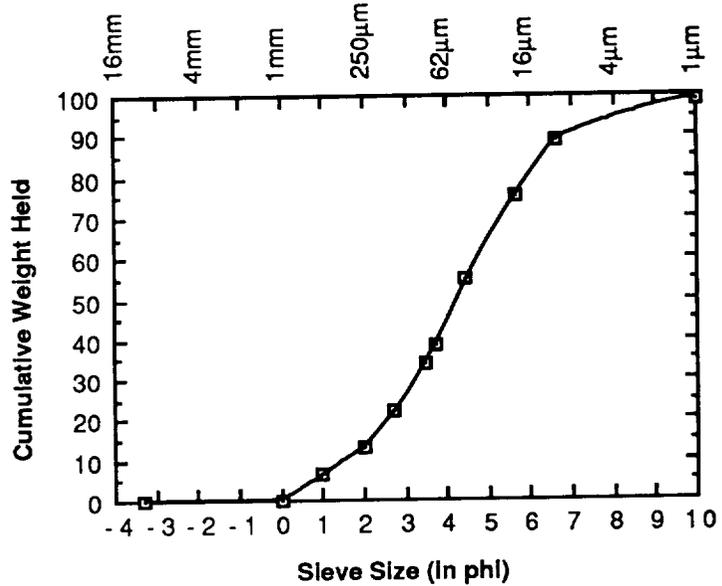
## MATURITY INDEX:

$I_s/FeO = 47$  (submature)

## TABULATED SIEVE DATA

Sieve Size (μm)	Wt %
10000.00	0.00
1000.00	0.00
500.00	6.42
250.00	6.91
150.00	8.71
90.00	11.79
75.00	4.95
45.00	16.28
20.00	20.32
10.00	13.57
1.00	10.04

CUMULATIVE WEIGHT DISTRIBUTION CURVE



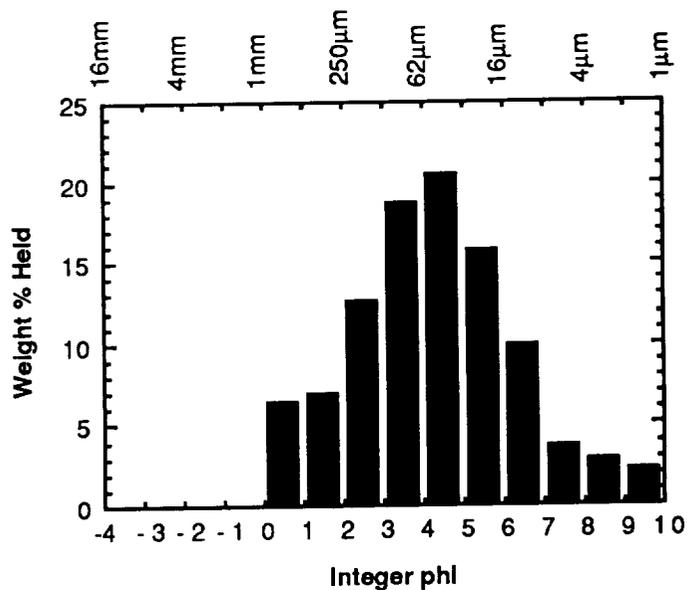
## GRAPHIC AND MOMENT MEASURES

Mean:	4.24
Median:	4.24
Mode:	4.50
Sorting:	2.14
Skewness:	0.05
Kurtosis:	1.16

## MOMENT MEASURE DATA

Wt % held	Ø size
5	0.79
16	2.26
25	2.94
50	4.24
75	5.62
84	6.23
95	8.36

SIZE DISTRIBUTION HISTOGRAM



# Soil: 15004

(subsample 15004,133) (Core: depth from surface, 85.9 - 86.4 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

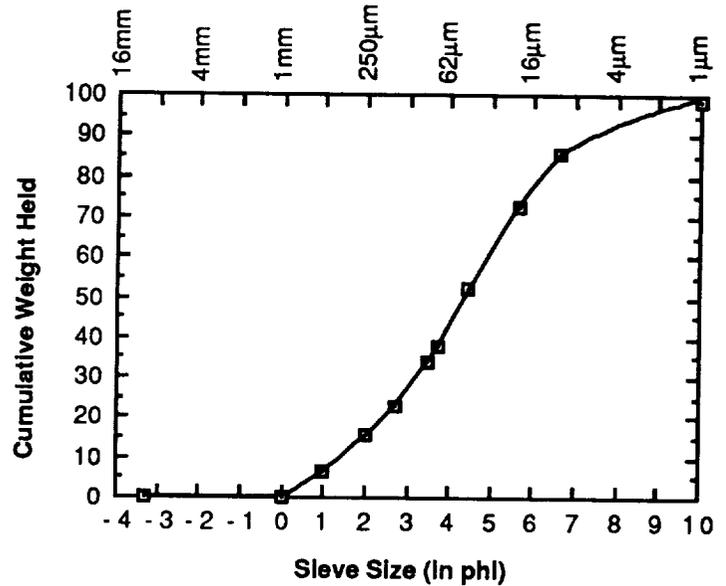
## MATURITY INDEX:

$I_s/FeO = 26$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	6.66
250.00	8.79
150.00	7.68
90.00	10.80
75.00	3.95
45.00	14.20
20.00	20.35
10.00	13.13
1.00	13.44

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



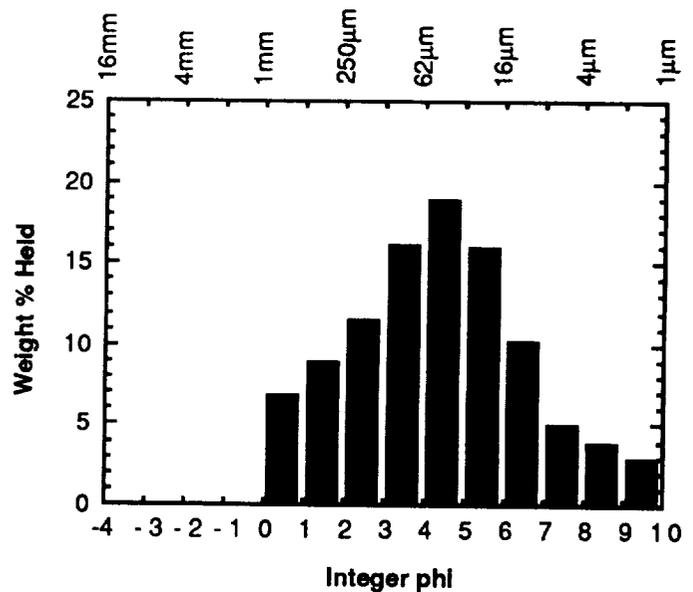
## GRAPHIC AND MOMENT MEASURES

Mean:	4.30
Median:	4.36
Mode:	4.50
Sorting:	2.31
Skewness:	0.03
Kurtosis:	1.10

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.78
16	2.06
25	2.87
50	4.36
75	5.82
84	6.47
95	8.73

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15005

(subsample 15005,16) (Core: depth from surface, 80.1 - 81.7 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

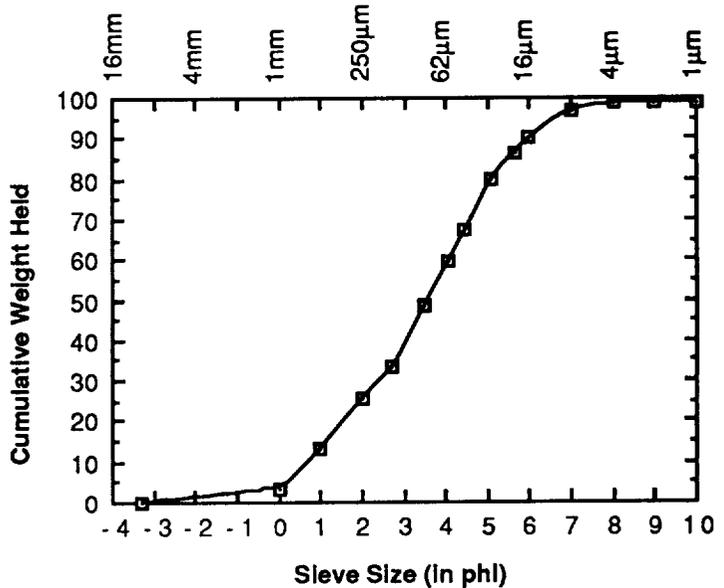
## MATURITY INDEX:

$I_g/FeO = 22$  (immature)

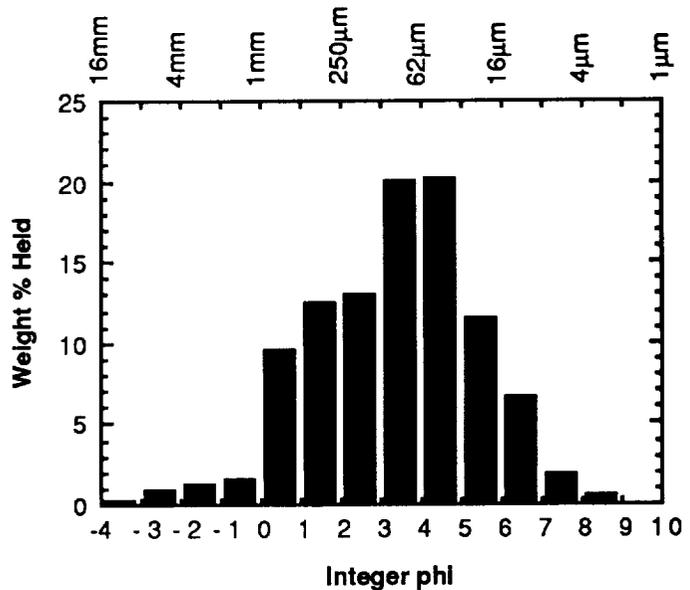
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	3.59
500.00	9.49
250.00	12.49
150.00	7.71
90.00	14.86
60.00	11.48
45.00	7.71
30.00	12.34
20.00	6.90
15.60	3.59
7.80	6.49
3.90	1.71
2.00	0.53
1.00	0.08

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	3.41
Median:	3.57
Mode:	4.50
Sorting:	2.01
Skewness:	-0.08
Kurtosis:	0.91

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.23
16	1.25
25	1.95
50	3.57
75	4.83
84	5.41
95	6.62

# Soil: 15005

(subsample 15005,23) (Core: depth from surface, 80.1 - 81.7 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

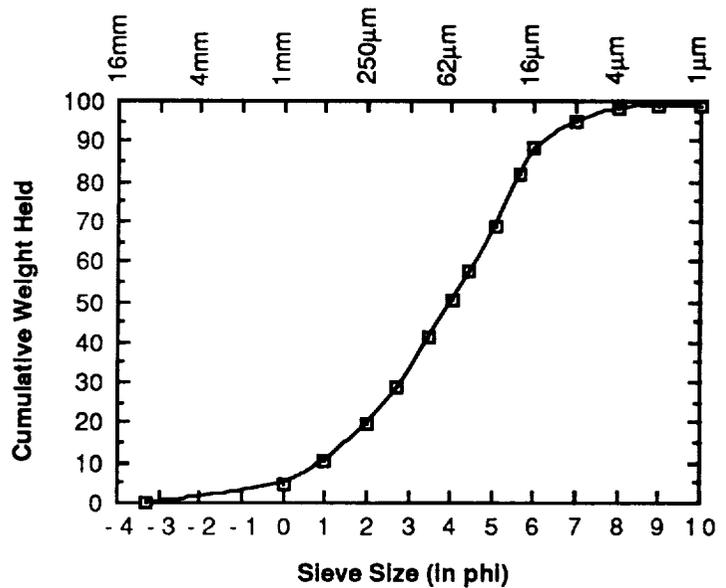
## MATURITY INDEX:

$I_s/FeO = 26$  (immature)

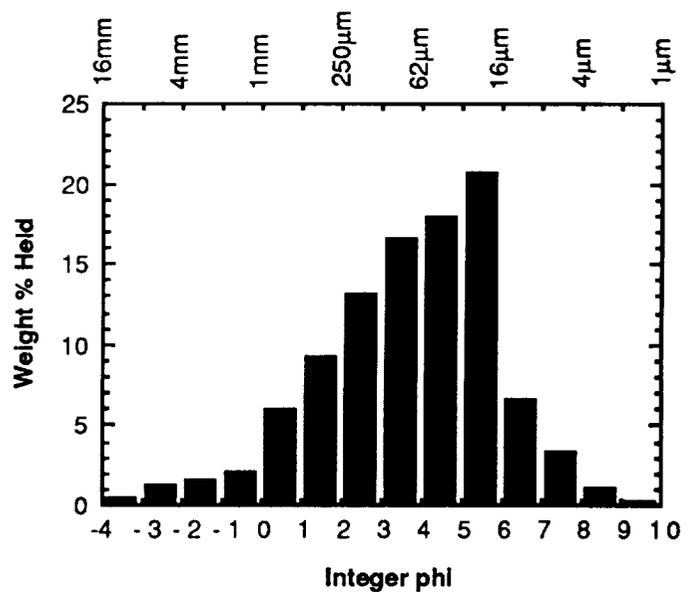
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	4.80
500.00	5.95
250.00	9.18
150.00	8.62
90.00	12.53
60.00	9.39
45.00	6.83
30.00	11.31
20.00	13.39
15.60	6.02
7.80	6.58
3.90	3.32
2.00	0.92
1.00	0.16

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	3.80
Median:	4.03
Mode:	5.50
Sorting:	2.10
Skewness:	-0.15
Kurtosis:	1.00

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.07
16	1.61
25	2.46
50	4.03
75	5.34
84	5.75
95	7.10

# Soil: 15005

(subsample 15005,391) (Core: depth from surface, 67.0 - 67.3 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

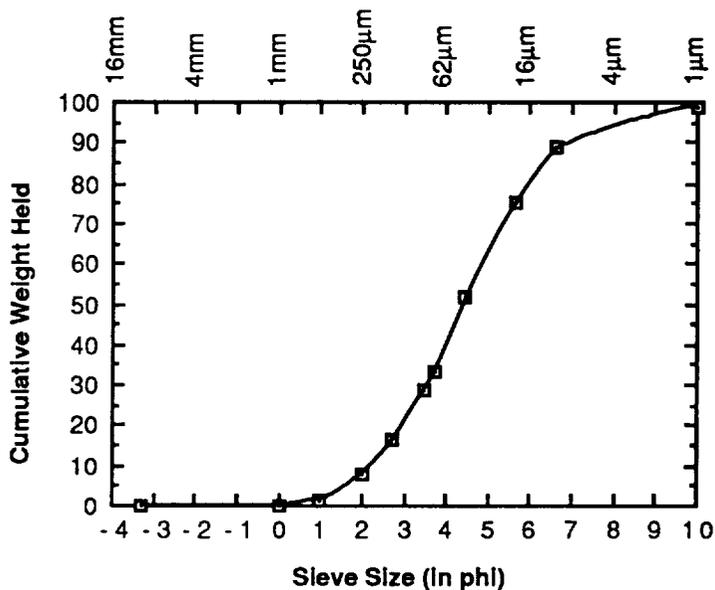
## MATURITY INDEX:

$I_p/FeO = 39$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	1.55
250.00	6.60
150.00	8.32
90.00	12.25
75.00	4.48
45.00	18.26
20.00	23.48
10.00	13.64
1.00	10.40

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



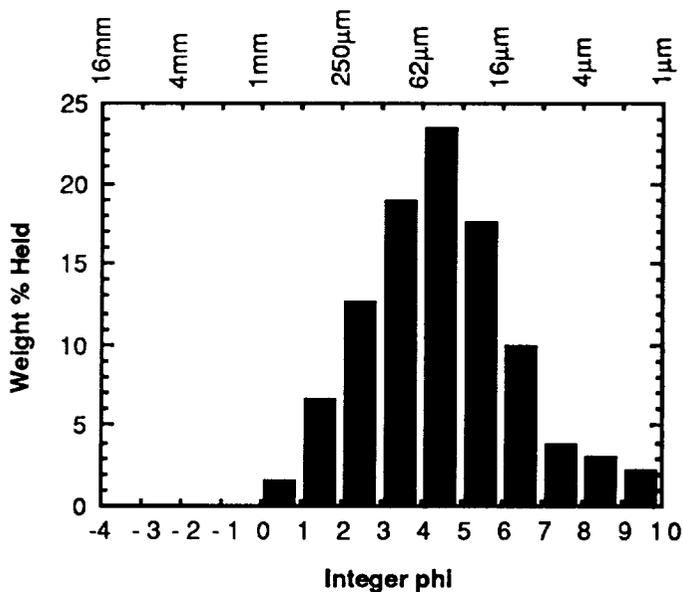
## GRAPHIC AND MOMENT MEASURES

Mean:	4.45
Median:	4.41
Mode:	4.50
Sorting:	1.92
Skewness:	0.10
Kurtosis:	1.17

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.60
16	2.70
25	3.25
50	4.41
75	5.65
84	6.24
95	8.41

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15005

(subsample 15005,393) (Core: depth from surface, 50.5 - 51.0 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

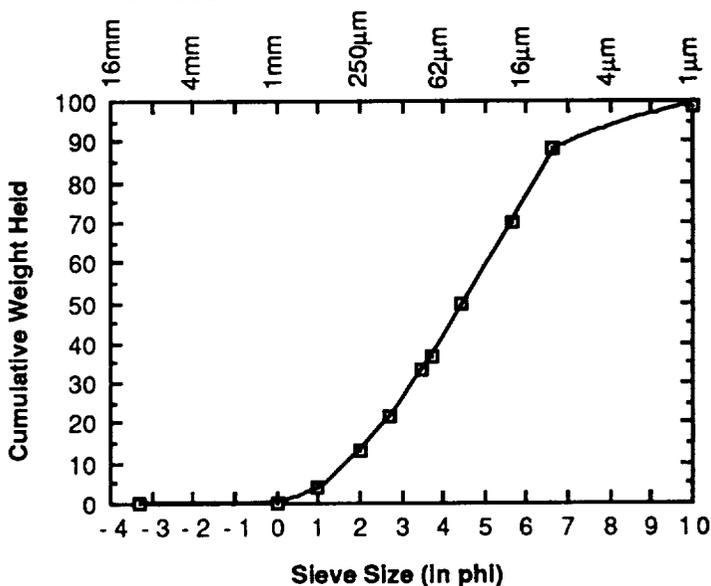
## MATURITY INDEX:

$I_s/FeO = 36$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	3.70
250.00	9.66
150.00	8.32
90.00	11.39
75.00	3.61
45.00	12.93
20.00	20.45
10.00	17.88
1.00	11.06

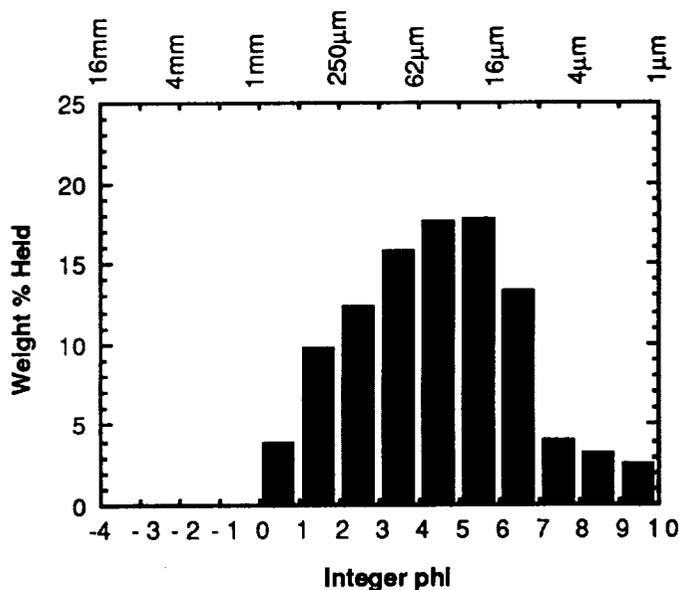
## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## GRAPHIC AND MOMENT MEASURES

Mean:	4.39
Median:	4.50
Mode:	5.50
Sorting:	2.15
Skewness:	0.01
Kurtosis:	1.02

## SIZE DISTRIBUTION HISTOGRAM



## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.18
16	2.25
25	2.96
50	4.50
75	5.92
84	6.42
95	8.51

# Soil: 15005

(subsample 15005,395) (Core: depth from surface, 45.1 - 45.5 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

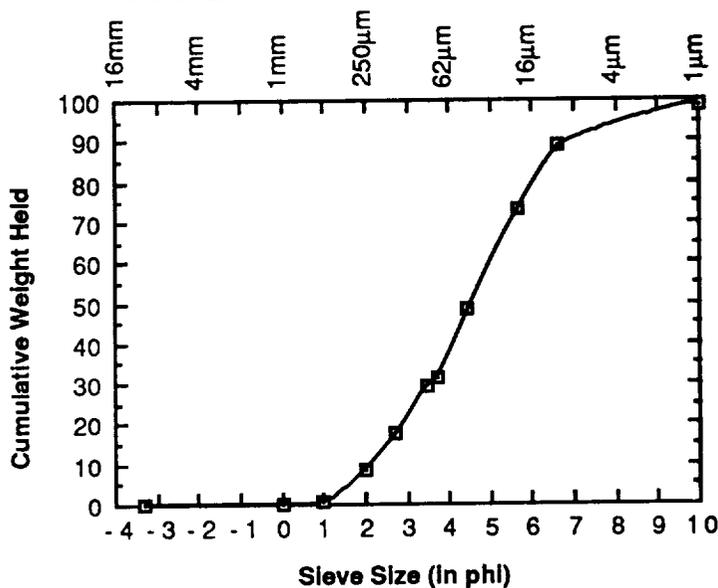
## MATURITY INDEX:

$I_g/FeO = 39$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	0.35
250.00	8.27
150.00	8.98
90.00	11.87
75.00	2.04
45.00	17.01
20.00	24.53
10.00	15.76
1.00	10.21

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



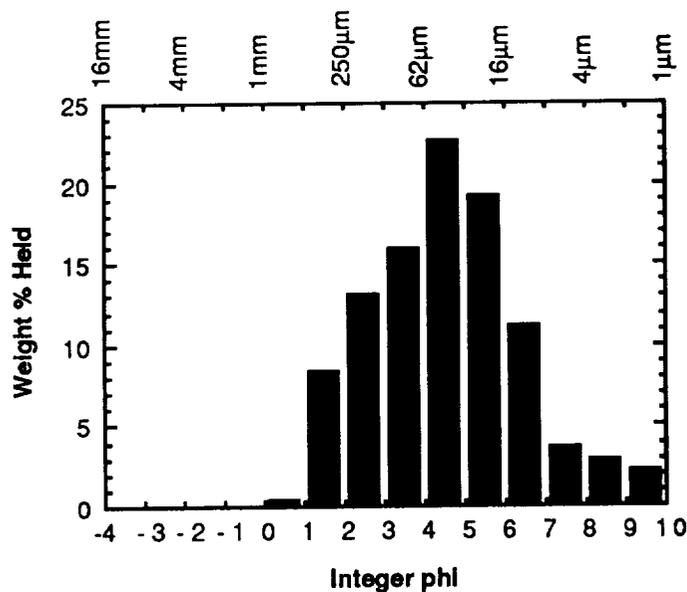
## GRAPHIC AND MOMENT MEASURES

Mean:	4.48
Median:	4.54
Mode:	4.50
Sorting:	1.94
Skewness:	0.04
Kurtosis:	1.08

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.63
16	2.62
25	3.18
50	4.54
75	5.76
84	6.28
95	8.40

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15006

(subsample 15006,17) (Core: depth from surface, 40.0 - 40.7 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

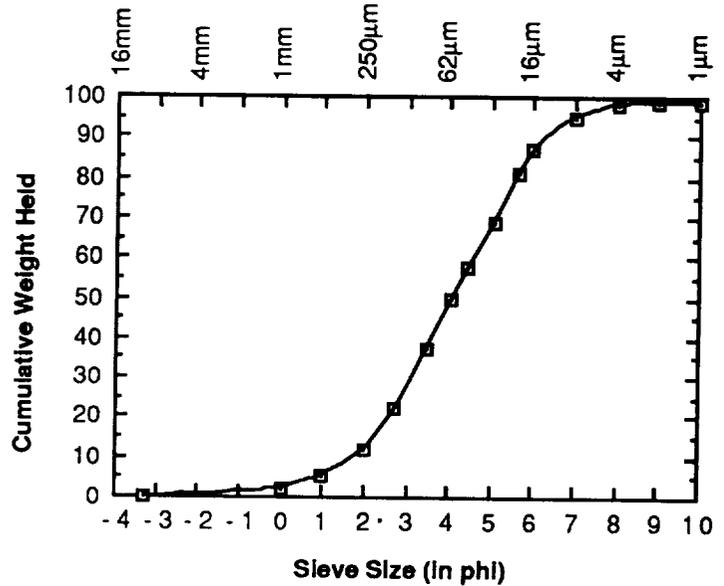
## MATURITY INDEX:

$I_s/FeO = 52$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	2.13
500.00	3.42
250.00	6.55
150.00	9.86
90.00	15.32
60.00	12.47
45.00	7.86
30.00	10.81
20.00	12.84
15.60	5.97
7.80	7.77
3.90	3.12
2.00	0.68
1.00	0.20

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



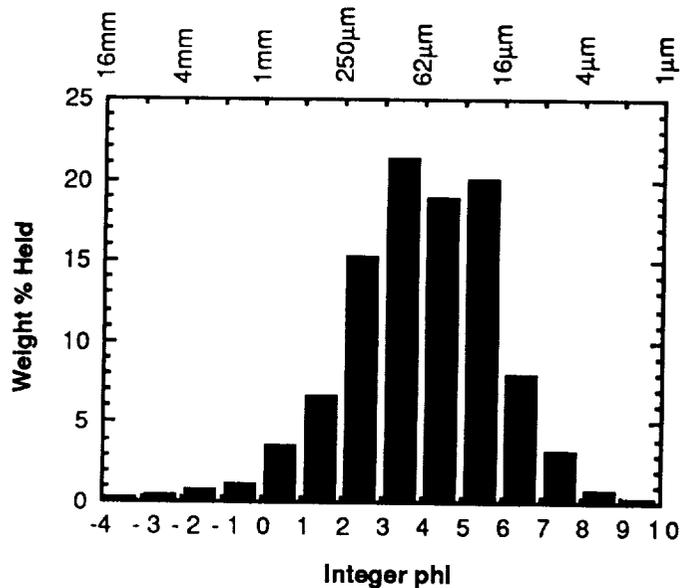
## GRAPHIC AND MOMENT MEASURES

Mean:	4.07
Median:	4.07
Mode:	3.50
Sorting:	1.79
Skewness:	-0.02
Kurtosis:	1.02

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.87
16	2.34
25	2.89
50	4.07
75	5.36
84	5.80
95	7.00

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15006

(subsample 15006,24) (Core: depth from surface, 39.4 - 39.9 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

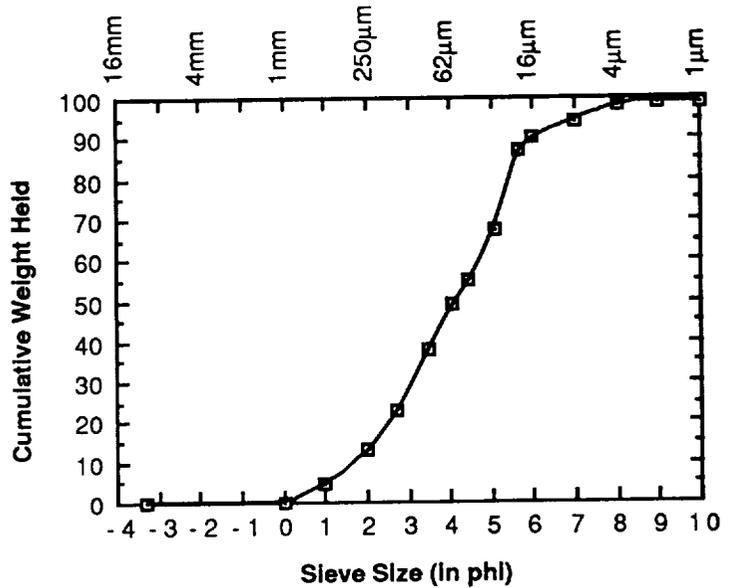
## MATURITY INDEX:

$I_g/FeO = 54$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	4.69
250.00	8.13
150.00	9.77
90.00	15.17
60.00	10.97
45.00	6.15
30.00	12.63
20.00	19.30
15.60	3.21
7.80	4.29
3.90	3.49
2.00	1.06
1.00	0.15

CUMULATIVE WEIGHT DISTRIBUTION CURVE



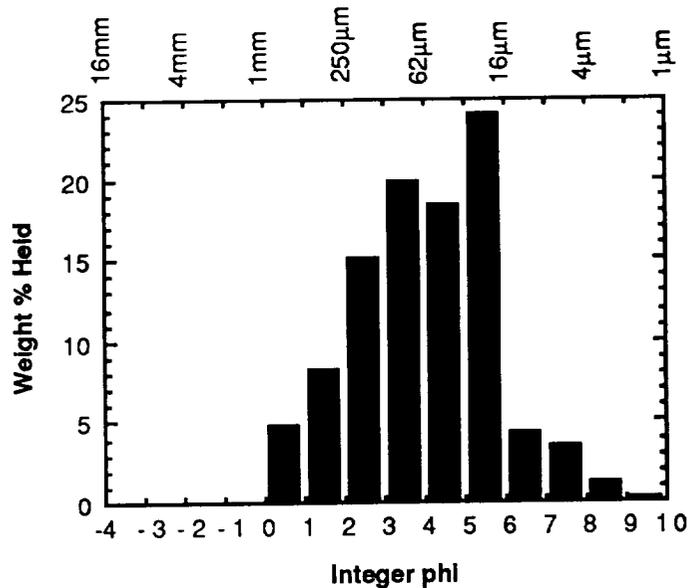
## GRAPHIC AND MOMENT MEASURES

Mean:	3.97
Median:	4.14
Mode:	5.50
Sorting:	1.73
Skewness:	-0.08
Kurtosis:	1.03

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.05
16	2.28
25	2.87
50	4.14
75	5.30
84	5.50
95	7.18

SIZE DISTRIBUTION HISTOGRAM



# Soil: 15006

(subsample 15006,200) (Core: depth from surface, 25.7 - 26.2 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

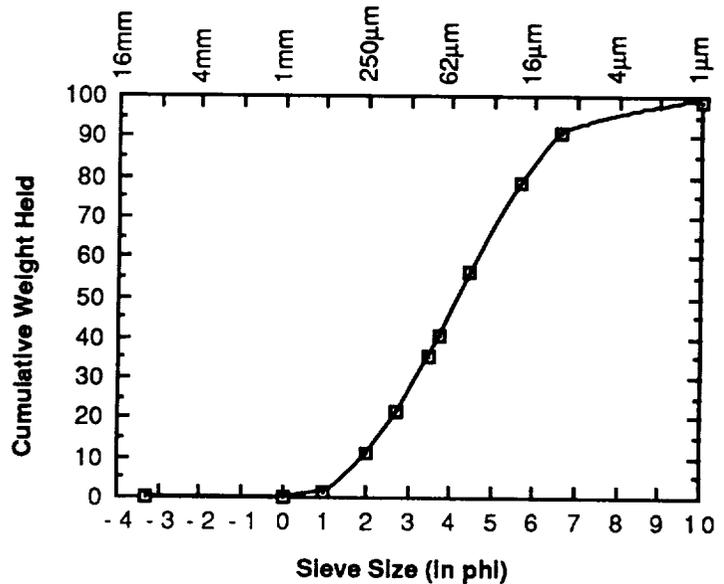
## MATURITY INDEX:

$I_s/FeO = 65$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	1.23
250.00	9.90
150.00	10.34
90.00	14.14
75.00	4.88
45.00	15.84
20.00	21.83
10.00	12.81
1.00	8.03

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



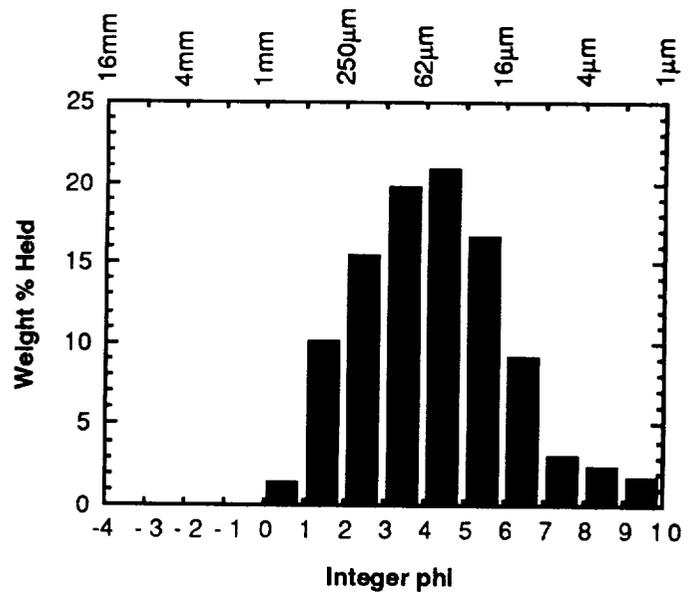
## GRAPHIC AND MOMENT MEASURES

Mean:	4.20
Median:	4.18
Mode:	4.50
Sorting:	1.91
Skewness:	0.10
Kurtosis:	1.07

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.47
16	2.37
25	2.93
50	4.18
75	5.44
84	6.05
95	8.03

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15006

(subsample 15006,201) (Core: depth from surface, 20.7 - 21.2 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

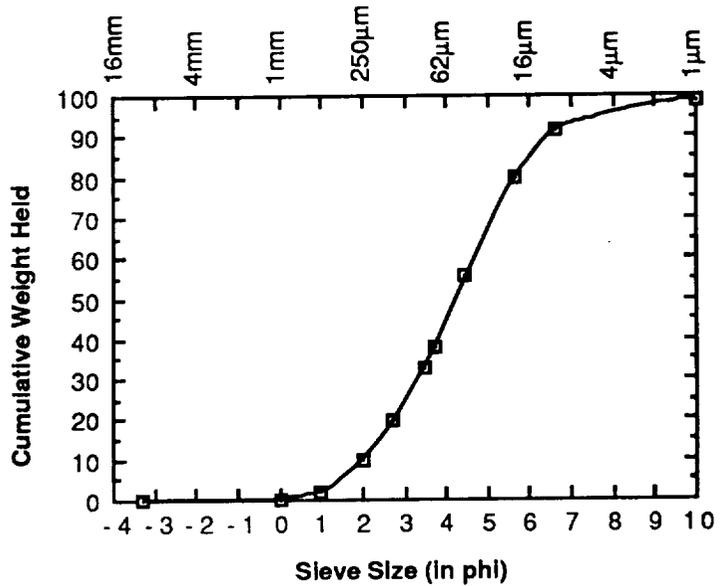
## MATURITY INDEX:

$I_g/FeO = 57$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	1.79
250.00	8.33
150.00	9.36
90.00	13.44
75.00	5.21
45.00	17.20
20.00	24.31
10.00	12.14
1.00	7.23

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



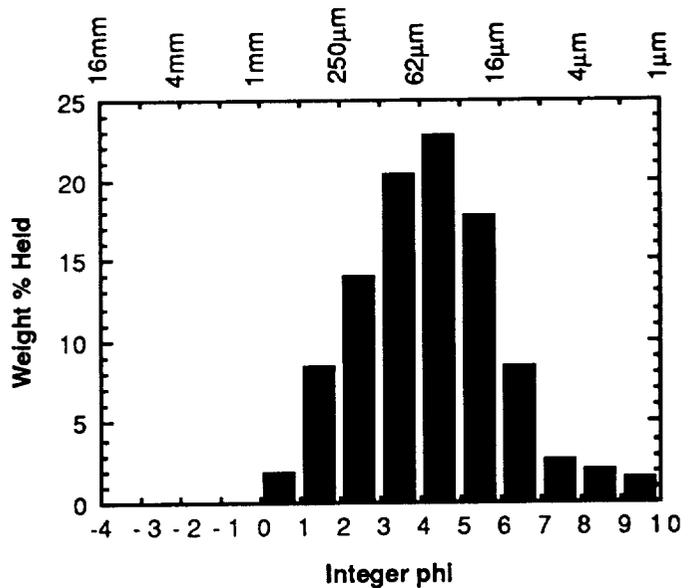
## GRAPHIC AND MOMENT MEASURES

Mean:	4.23
Median:	4.24
Mode:	4.50
Sorting:	1.83
Skewness:	0.06
Kurtosis:	1.12

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.48
16	2.49
25	3.06
50	4.24
75	5.38
84	5.95
95	7.85

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15006

(subsample 15006,202) (Core: depth from surface, 12.2 - 12.7 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

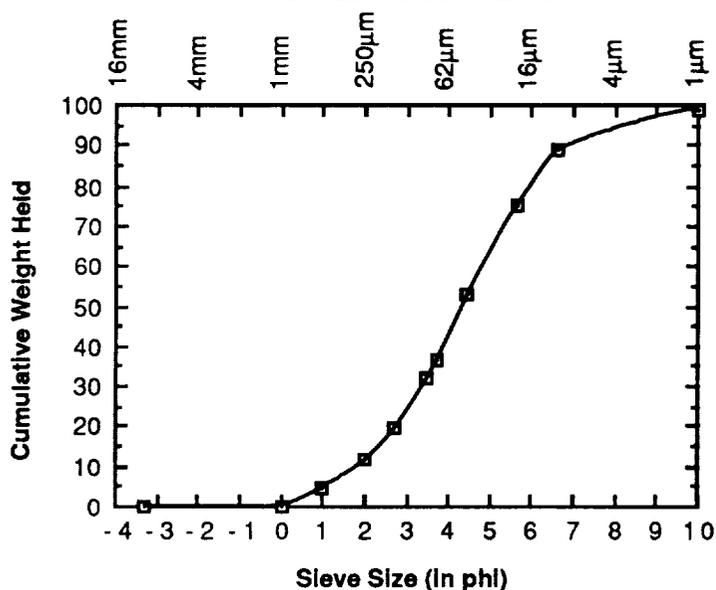
## MATURITY INDEX:

$I_g/FeO = 78$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	4.70
250.00	6.74
150.00	8.22
90.00	12.08
75.00	4.93
45.00	16.42
20.00	22.28
10.00	13.54
1.00	10.09

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



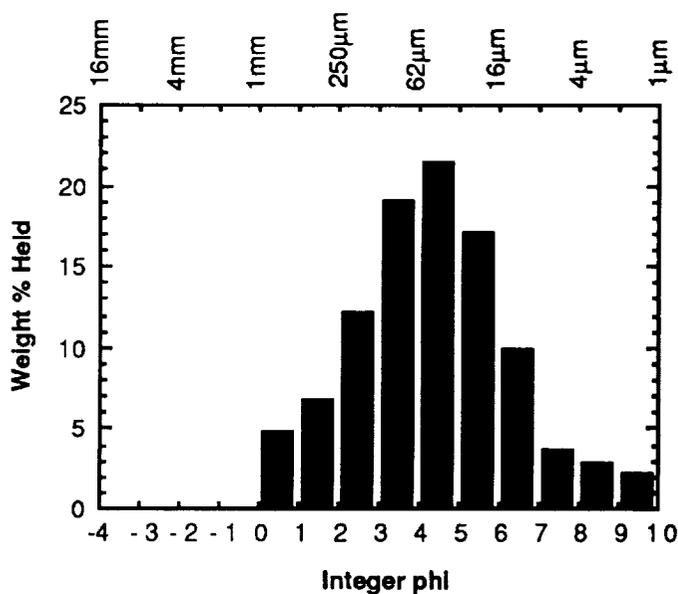
## GRAPHIC AND MOMENT MEASURES

Mean:	4.33
Median:	4.33
Mode:	4.50
Sorting:	2.05
Skewness:	0.05
Kurtosis:	1.18

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.05
16	2.44
25	3.09
50	4.33
75	5.62
84	6.22
95	8.37

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15006

(subsample 15006,203) (Core: depth from surface, 7.2 - 7.7 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

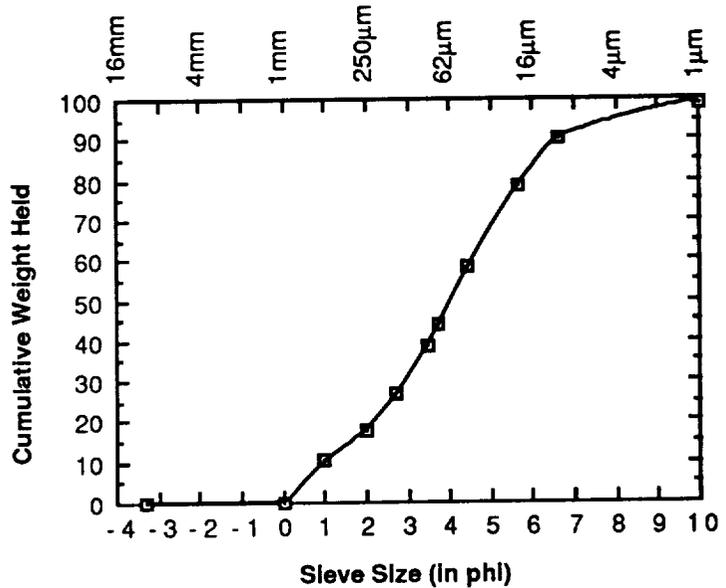
## MATURITY INDEX:

$I_g/FeO = 77$  (mature)

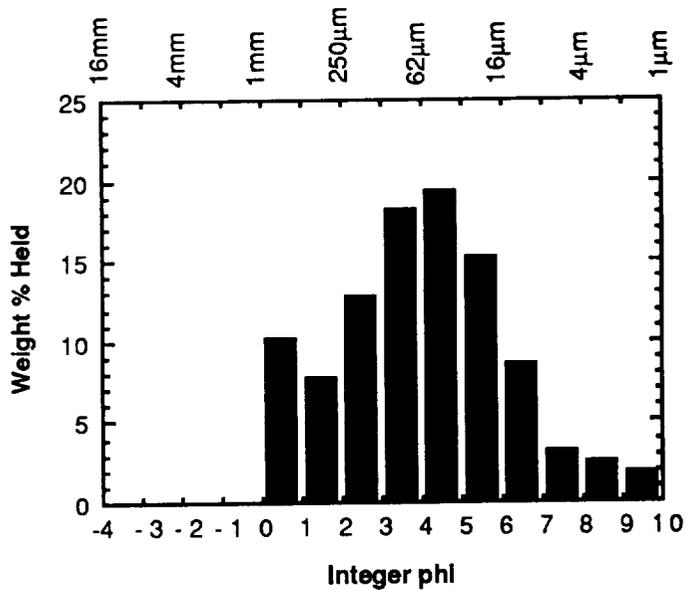
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	10.14
250.00	7.66
150.00	8.83
90.00	12.08
75.00	4.80
45.00	14.88
20.00	20.13
10.00	11.71
1.00	8.77

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	3.97
Median:	4.06
Mode:	4.50
Sorting:	2.23
Skewness:	0.00
Kurtosis:	1.13

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.49
16	1.78
25	2.62
50	4.06
75	5.40
84	6.06
95	8.16

# Soil: 15006

(subsample 15006,204) (Core: depth from surface, 2.7 - 3.2 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

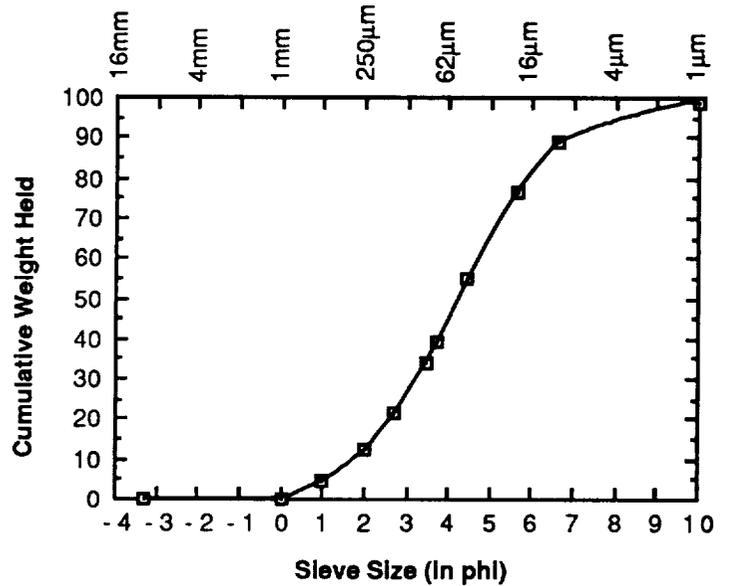
## MATURITY INDEX:

$I_s/FeO = 82$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	4.58
250.00	7.59
150.00	9.45
90.00	12.63
75.00	4.64
45.00	15.72
20.00	22.02
10.00	12.25
1.00	10.11

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



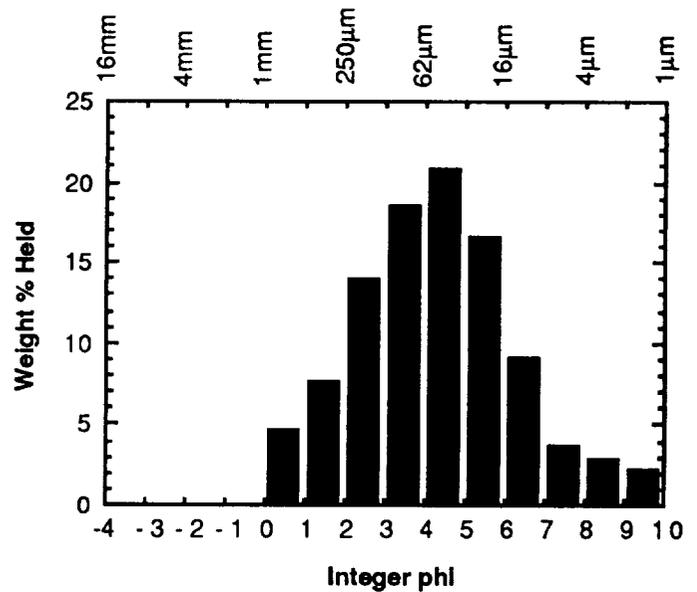
## GRAPHIC AND MOMENT MEASURES

Mean:	4.25
Median:	4.25
Mode:	4.50
Sorting:	2.07
Skewness:	0.06
Kurtosis:	1.15

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.07
16	2.33
25	2.94
50	4.25
75	5.54
84	6.18
95	8.37

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15006

(subsample 15006,176) (Core: depth from surface, 0.0 - 0.7 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core 15001-15006 was taken at Station 8, 5 m southeast of the trench. Area has a smooth hummocky surface with fine grained material and rare cobble-sized fragments not visibly related to any particular crater. Astronauts report a hard layer at a depth of 35 cm at the trench; this layer may exist in the core as well.

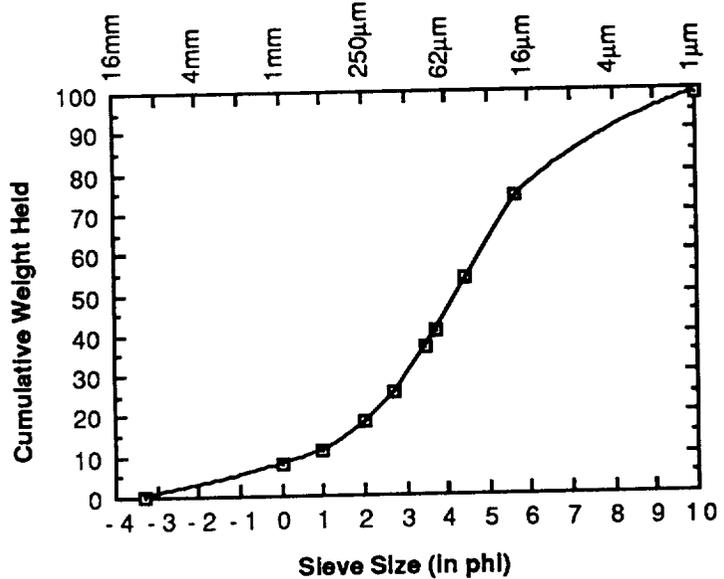
## MATURITY INDEX:

$I_s/FeO = 73$  (mature)

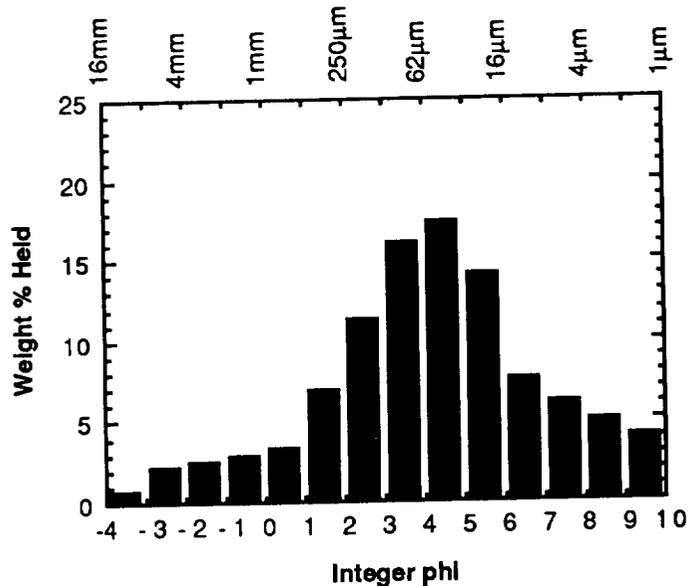
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	7.83
500.00	3.33
250.00	6.90
150.00	7.51
90.00	11.02
75.00	4.16
45.00	12.78
20.00	20.03
1.00	25.44

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## SIZE DISTRIBUTION HISTOGRAM

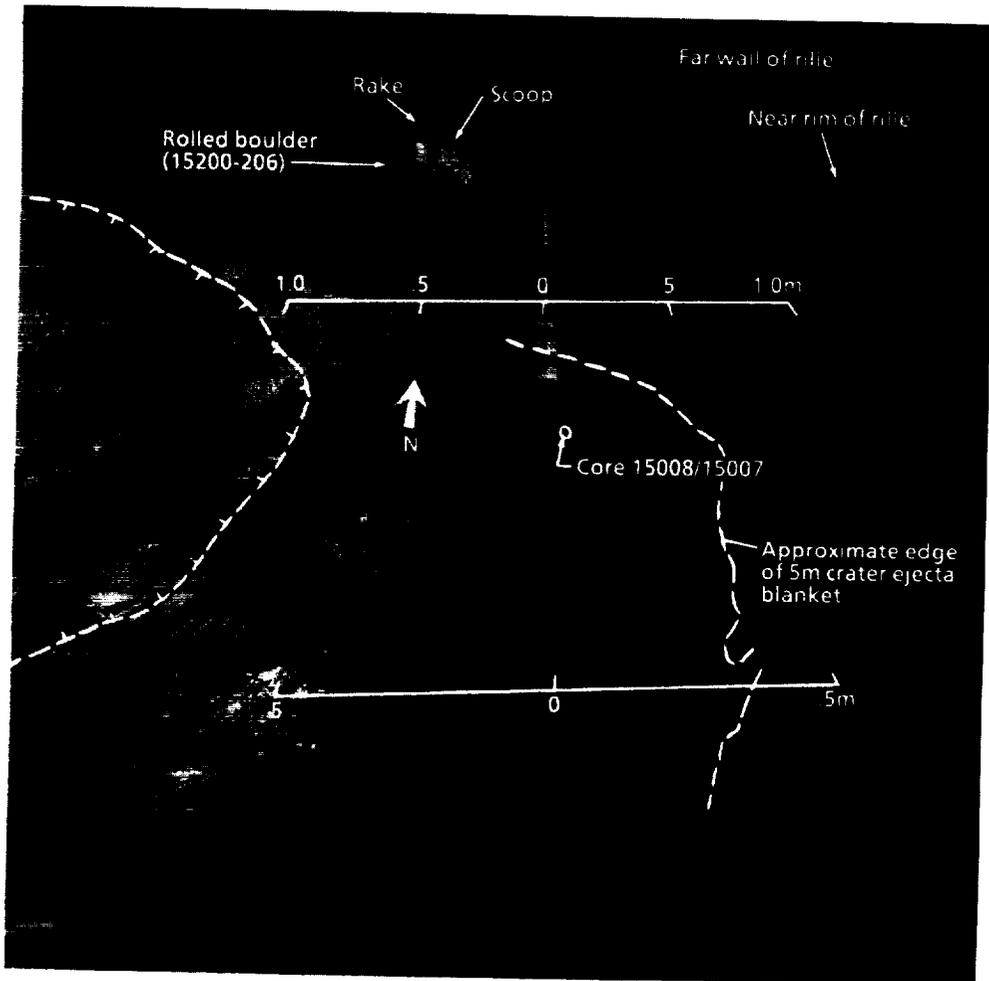


## GRAPHIC AND MOMENT MEASURES

Mean:	4.35
Median:	4.27
Mode:	4.50
Sorting:	2.85
Skewness:	-0.00
Kurtosis:	1.33

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-1.04
16	1.74
25	2.69
50	4.27
75	5.80
84	7.03
95	9.07



Core 15007 - 15008  
Sample Environment

AS15-85-11443

**Pre-sampling. Note deep  
boot prints near crater rim.**

# Soil: 15007

(subsample 15007,177) (Core: depth from surface, 55.6 - 56.1)  
D.S. McKay PI

## LOCATION COMMENTS:

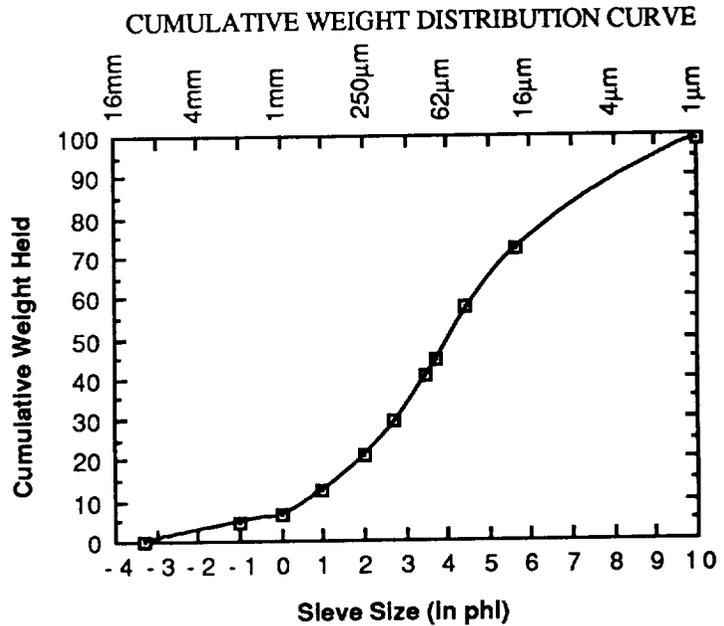
Double core 15007-15008 was collected at Station 2, 5m SE of the large boulder on the rim of a 10m crater. Local concentrations of clods on the crater rim, but the site mostly has fine grained character. Lack of blocks suggests a mature, intensely gardened regolith.

## MATURITY INDEX:

$I_g/FeO = 33$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	4.58
1000.00	1.85
500.00	6.16
250.00	8.52
150.00	8.23
90.00	10.95
75.00	4.19
45.00	12.78
20.00	14.73
1.00	27.01

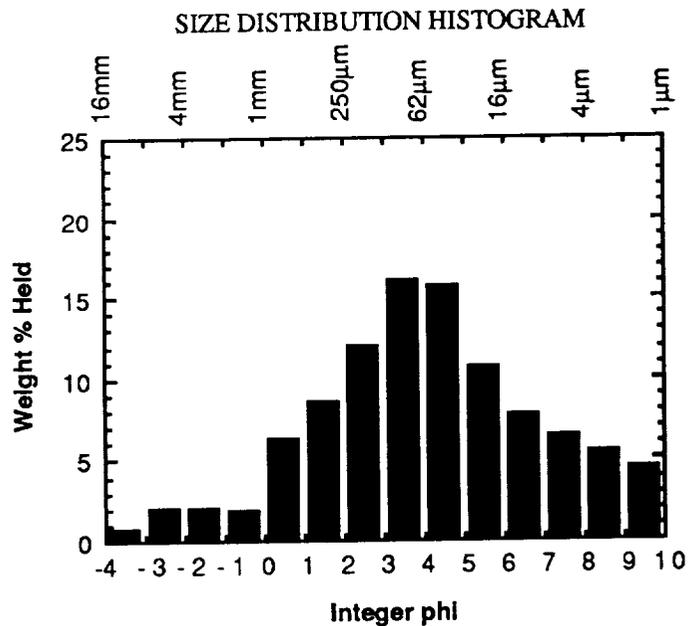


## GRAPHIC AND MOMENT MEASURES

Mean:	4.24
Median:	4.06
Mode:	3.50
Sorting:	2.95
Skewness:	0.06
Kurtosis:	1.13

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-0.78
16	1.44
25	2.37
50	4.06
75	5.98
84	7.22
95	9.15



# Soil: 15007

(subsample 15007,181) (Core: depth from surface, 54.1 - 54.8)  
D.S. McKay PI

## LOCATION COMMENTS:

Double core 15007-15008 was collected at Station 2, 5m SE of the large boulder on the rim of a 10m crater. Local concentrations of clods on the crater rim, but the site mostly has fine grained character. Lack of blocks suggests a mature, intensely gardened regolith.

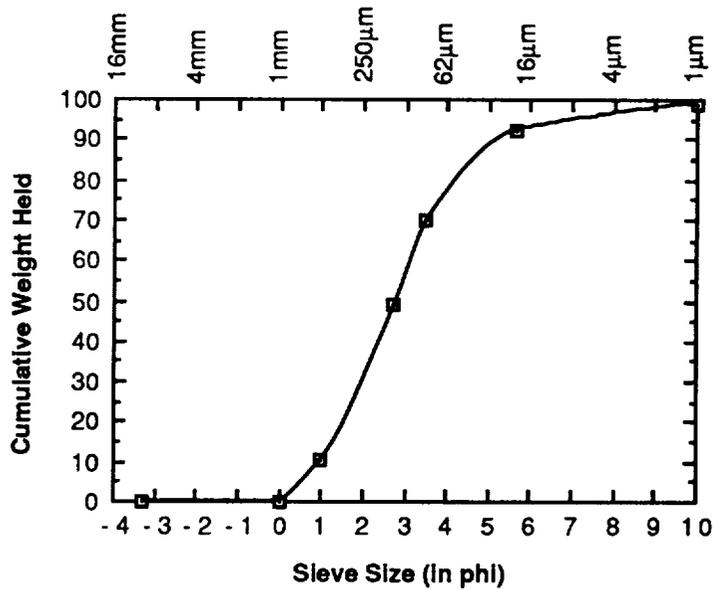
## MATURITY INDEX:

$I_s/FeO = 31$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	10.40
150.00	38.55
90.00	20.86
20.00	22.47
1.00	6.71

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



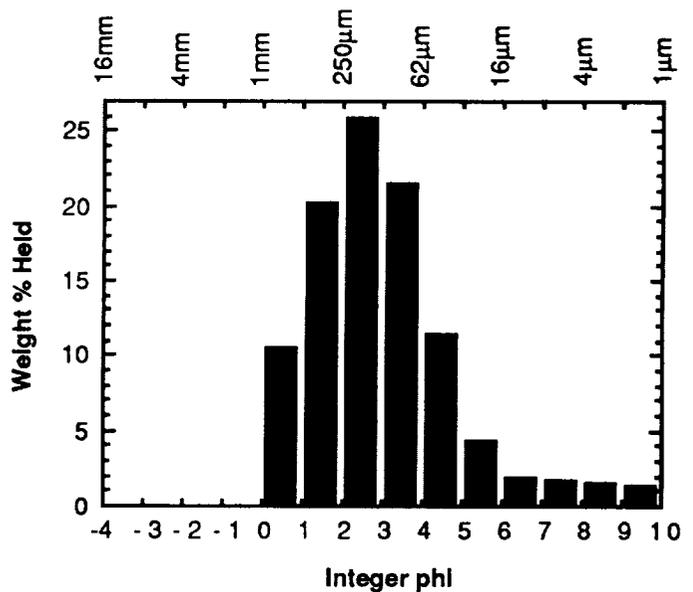
## GRAPHIC AND MOMENT MEASURES

Mean:	2.86
Median:	2.78
Mode:	2.50
Sorting:	1.77
Skewness:	0.20
Kurtosis:	1.33

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.54
16	1.36
25	1.78
50	2.78
75	3.81
84	4.45
95	7.13

## SIZE DISTRIBUTION HISTOGRAM



**Soil: 15007**  
 (subsample 15007,176) (Core: depth from surface, 54.1 - 54.6)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Double core 15007-15008 was collected at Station 2, 5m SE of the large boulder on the rim of a 10m crater. Local concentrations of clods on the crater rim, but the site mostly has fine grained character. Lack of blocks suggests a mature, intensely gardened regolith.

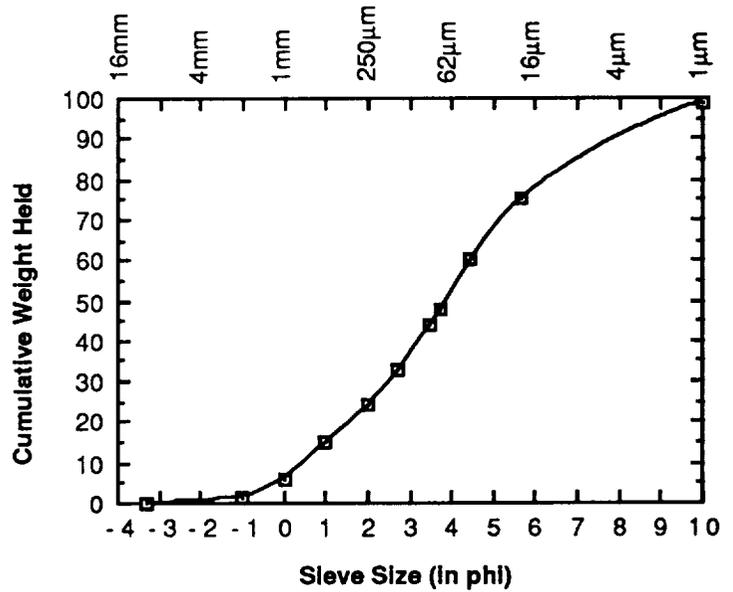
**MATURITY INDEX:**

$I_s/FeO = 31$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	1.58
1000.00	4.41
500.00	9.02
250.00	8.98
150.00	8.70
90.00	10.93
75.00	4.07
45.00	12.54
20.00	14.96
1.00	23.81

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



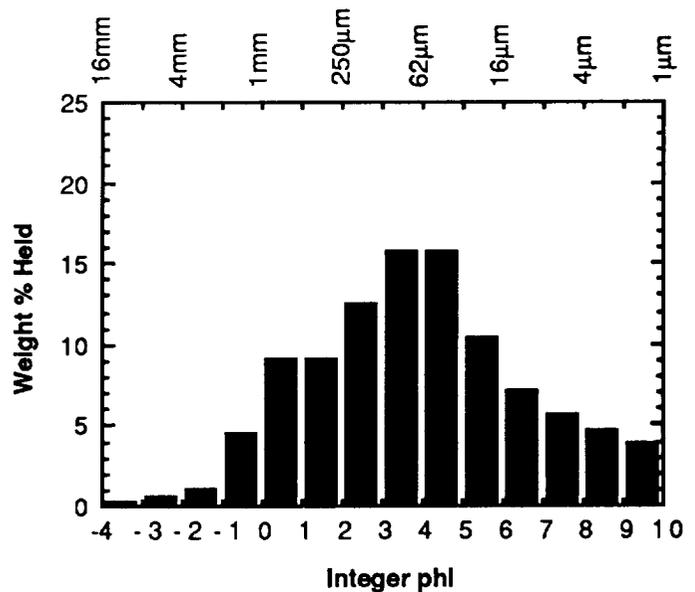
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.96
Median:	3.88
Mode:	3.50
Sorting:	2.84
Skewness:	0.08
Kurtosis:	1.07

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.19
16	1.11
25	2.10
50	3.88
75	5.62
84	6.89
95	9.03

**SIZE DISTRIBUTION HISTOGRAM**



# Soil: 15007

(subsample 15007,175) (Core: depth from surface, 50.1 - 50.6)

D.S. McKay PI

## LOCATION COMMENTS:

Double core 15007-15008 was collected at Station 2, 5m SE of the large boulder on the rim of a 10m crater. Local concentrations of clods on the crater rim, but the site mostly has fine grained character. Lack of blocks suggests a mature, intensely gardened regolith.

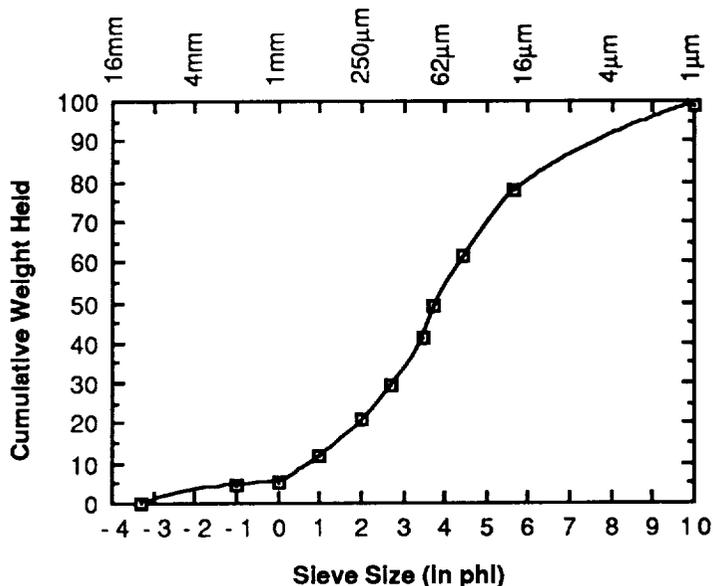
## MATURITY INDEX:

$I_s/FeO = 25$  (immature)

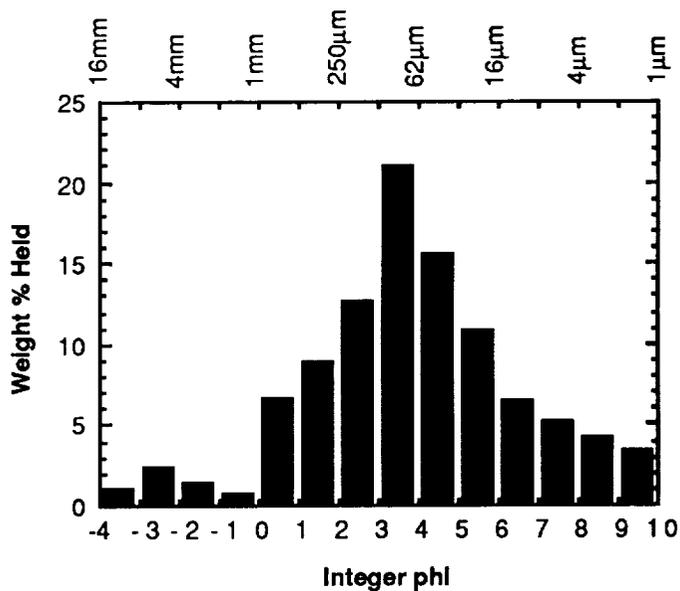
### TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	4.57
1000.00	0.66
500.00	6.54
250.00	8.87
150.00	8.93
90.00	11.37
75.00	8.07
45.00	12.59
20.00	16.04
1.00	21.35

CUMULATIVE WEIGHT DISTRIBUTION CURVE



SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	3.96
Median:	3.78
Mode:	3.50
Sorting:	2.67
Skewness:	0.11
Kurtosis:	1.26

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-0.34
16	1.52
25	2.38
50	3.78
75	5.39
84	6.60
95	8.91

# Soil: 15007

(subsample 15007,174) (Core: depth from surface, 48.1 - 48.6)

D.S. McKay PI

## LOCATION COMMENTS:

Double core 15007-15008 was collected at Station 2, 5m SE of the large boulder on the rim of a 10m crater. Local concentrations of clods on the crater rim, but the site mostly has fine grained character. Lack of blocks suggests a mature, intensely gardened regolith.

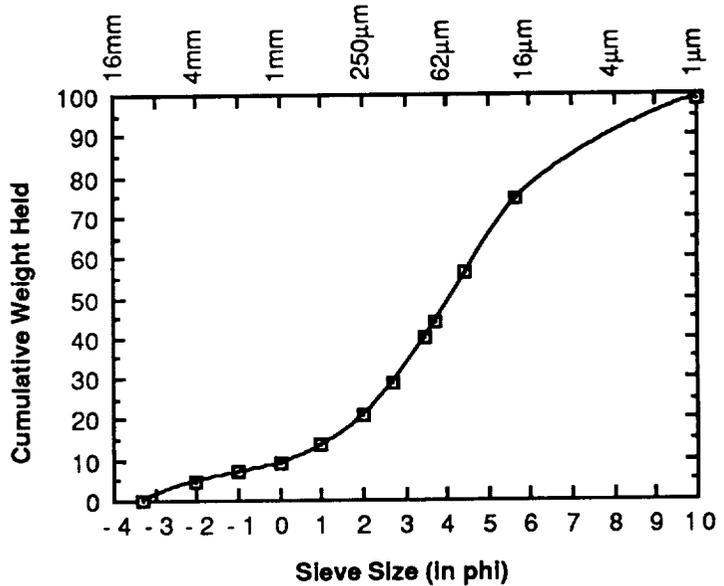
## MATURITY INDEX:

$I_g/FeO = 43$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	4.66
2000.00	2.21
1000.00	2.08
500.00	4.66
250.00	7.25
150.00	8.18
90.00	10.87
75.00	4.10
45.00	12.52
20.00	18.28
1.00	24.20

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



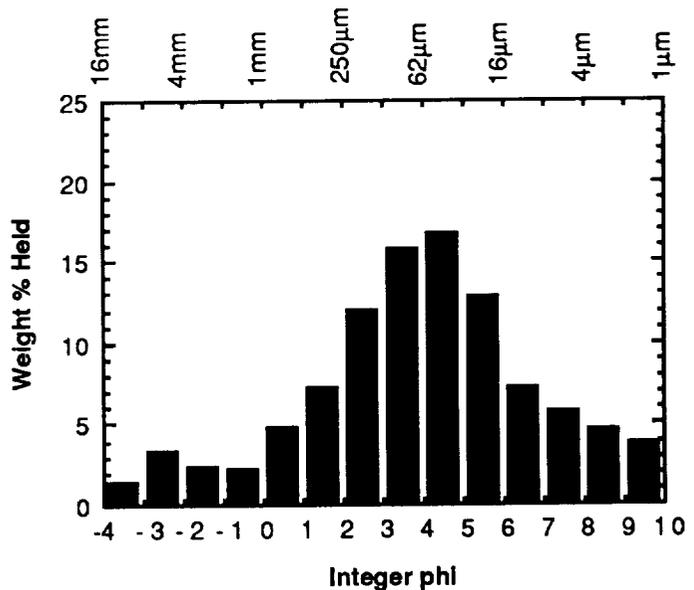
## GRAPHIC AND MOMENT MEASURES

Mean:	4.13
Median:	4.09
Mode:	4.50
Sorting:	3.03
Skewness:	-0.04
Kurtosis:	1.37

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-1.86
16	1.39
25	2.40
50	4.09
75	5.67
84	6.91
95	9.03

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15007

(subsample 15007,173) (Core: depth from surface, 41.6 - 42.1)

D.S. McKay PI

## LOCATION COMMENTS:

Double core 15007-15008 was collected at Station 2, 5m SE of the large boulder on the rim of a 10m crater. Local concentrations of clods on the crater rim, but the site mostly has fine grained character. Lack of blocks suggests a mature, intensely gardened regolith.

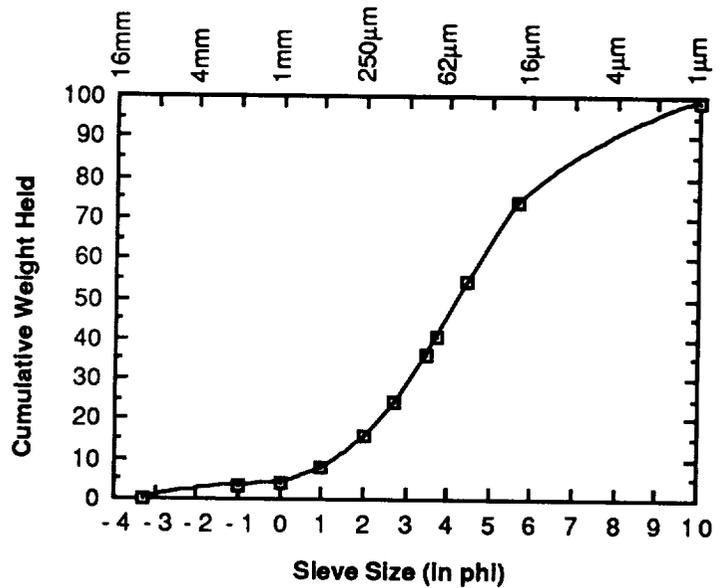
## MATURITY INDEX:

$I_s/FeO = 60$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	3.29
1000.00	0.57
500.00	3.96
250.00	7.56
150.00	8.60
90.00	12.17
75.00	4.65
45.00	13.30
20.00	19.71
1.00	25.19

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



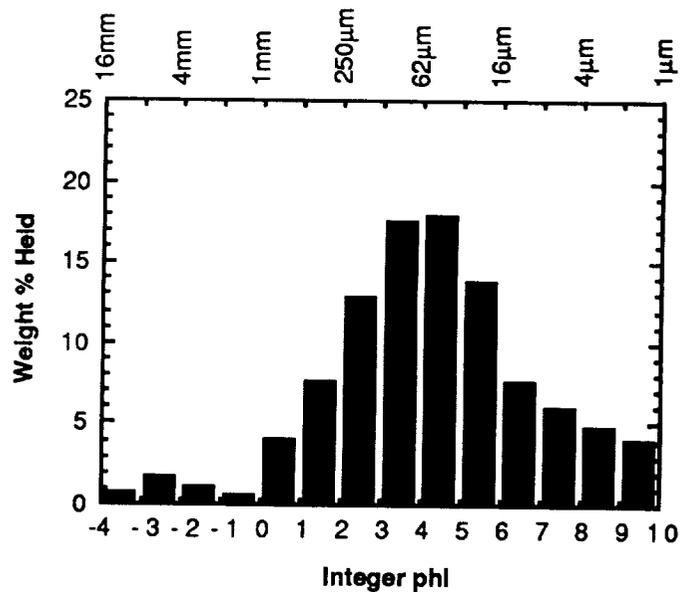
## GRAPHIC AND MOMENT MEASURES

Mean:	4.44
Median:	4.25
Mode:	4.50
Sorting:	2.55
Skewness:	0.11
Kurtosis:	1.20

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.40
16	2.07
25	2.81
50	4.25
75	5.78
84	7.01
95	9.07

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15007

(subsample 15007,172) (Core: depth from surface, 31.6 - 32.1)

D.S. McKay PI

## LOCATION COMMENTS:

Double core 15007-15008 was collected at Station 2, 5m SE of the large boulder on the rim of a 10m crater. Local concentrations of clods on the crater rim, but the site mostly has fine grained character. Lack of blocks suggests a mature, intensely gardened regolith.

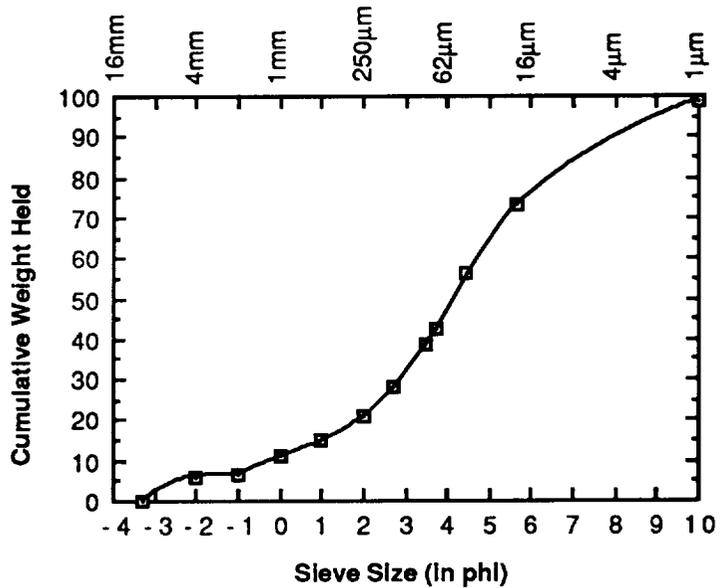
## MATURITY INDEX:

$I_g/FeO = 54$  (submature)

## TABULATED SIEVE DATA

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	6.06
2000.00	0.63
1000.00	4.11
500.00	3.91
250.00	6.25
150.00	7.24
90.00	10.22
75.00	4.10
45.00	13.37
20.00	17.39
1.00	25.73

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



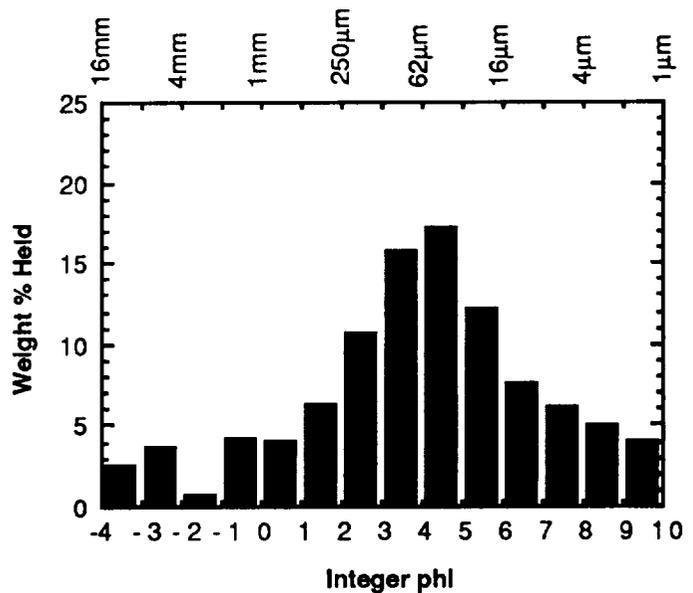
## GRAPHIC AND MOMENT MEASURES

Mean:	4.16
Median:	4.15
Mode:	4.50
Sorting:	3.24
Skewness:	-0.08
Kurtosis:	1.43

## MOMENT MEASURE DATA

Wt % held	Ø size
5	-2.72
16	1.25
25	2.44
50	4.15
75	5.84
84	7.07
95	9.09

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15007

(subsample 15007,171) (Core: depth from surface, 25.1 - 25.6)  
D.S. McKay PI

## LOCATION COMMENTS:

Double core 15007-15008 was collected at Station 2, 5m SE of the large boulder on the rim of a 10m crater. Local concentrations of clods on the crater rim, but the site mostly has fine grained character. Lack of blocks suggests a mature, intensely gardened regolith.

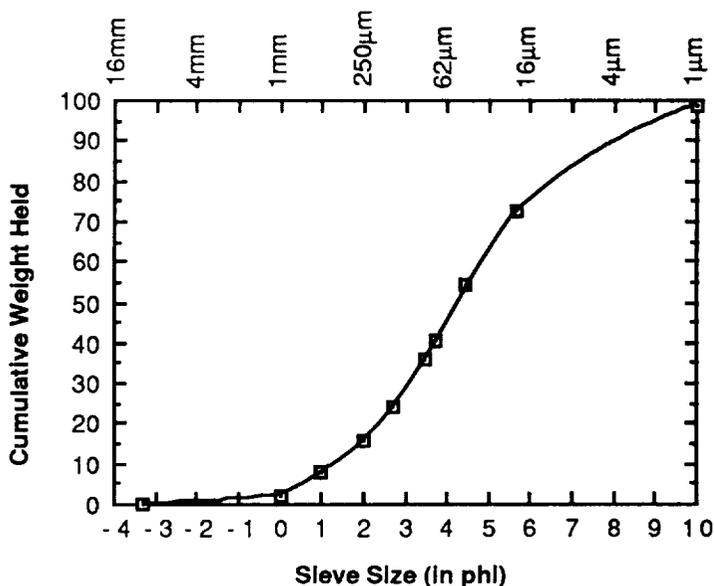
## MATURITY INDEX:

$I_s/FeO = 47$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	2.20
500.00	5.70
250.00	7.89
150.00	8.63
90.00	11.29
75.00	4.62
45.00	13.74
20.00	18.43
1.00	26.49

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



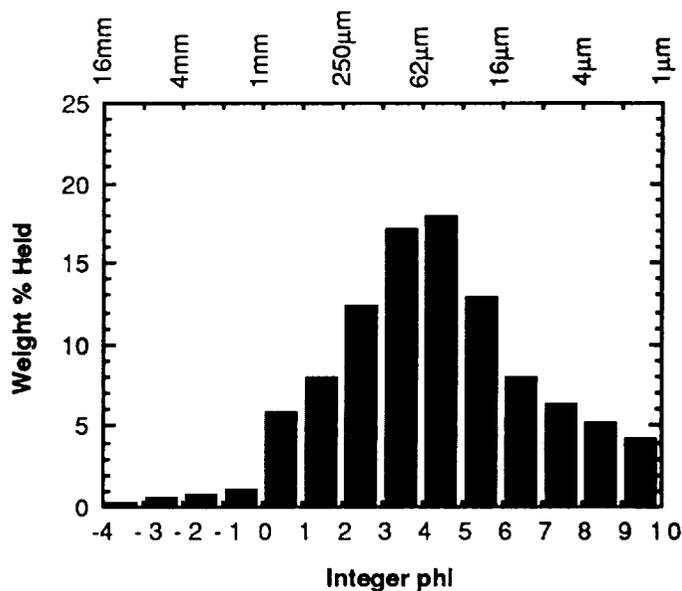
## GRAPHIC AND MOMENT MEASURES

Mean:	4.47
Median:	4.25
Mode:	4.50
Sorting:	2.58
Skewness:	0.13
Kurtosis:	1.12

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.55
16	2.02
25	2.78
50	4.25
75	5.92
84	7.13
95	9.11

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15008

(subsample 15008,206) (Core: depth from surface, 22.0 - 22.5)  
D.S. McKay PI

## LOCATION COMMENTS:

Double core 15007-15008 was collected at Station 2, 5m SE of the large boulder on the rim of a 10m crater. Local concentrations of clods on the crater rim, but the site mostly has fine grained character. Lack of blocks suggests a mature, intensely gardened regolith.

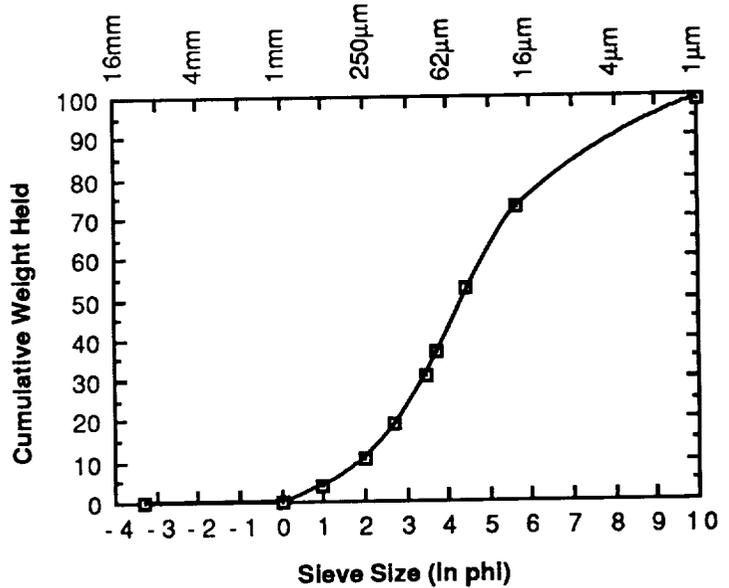
## MATURITY INDEX:

$I_p/FeO = 58$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	4.03
250.00	6.53
150.00	8.37
90.00	12.04
75.00	5.49
45.00	15.74
20.00	20.23
1.00	26.56

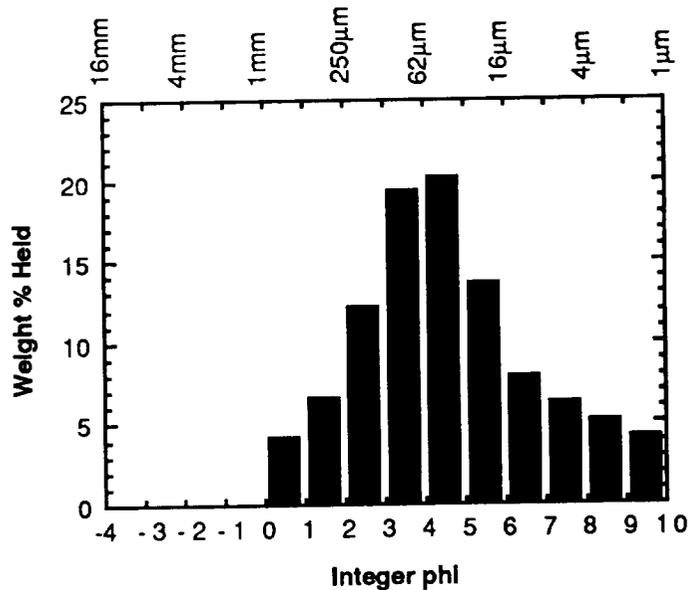
## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## GRAPHIC AND MOMENT MEASURES

Mean:	4.67
Median:	4.37
Mode:	4.50
Sorting:	2.36
Skewness:	0.20
Kurtosis:	1.17

## SIZE DISTRIBUTION HISTOGRAM



## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.19
16	2.51
25	3.14
50	4.37
75	5.92
84	7.13
95	9.11

# Soil: 15008

(subsample 15008,205) (Core: depth from surface, 18.0 - 18.5)

D.S. McKay PI

## LOCATION COMMENTS:

Double core 15007-15008 was collected at Station 2, 5m SE of the large boulder on the rim of a 10m crater. Local concentrations of clods on the crater rim, but the site mostly has fine grained character. Lack of blocks suggests a mature, intensely gardened regolith.

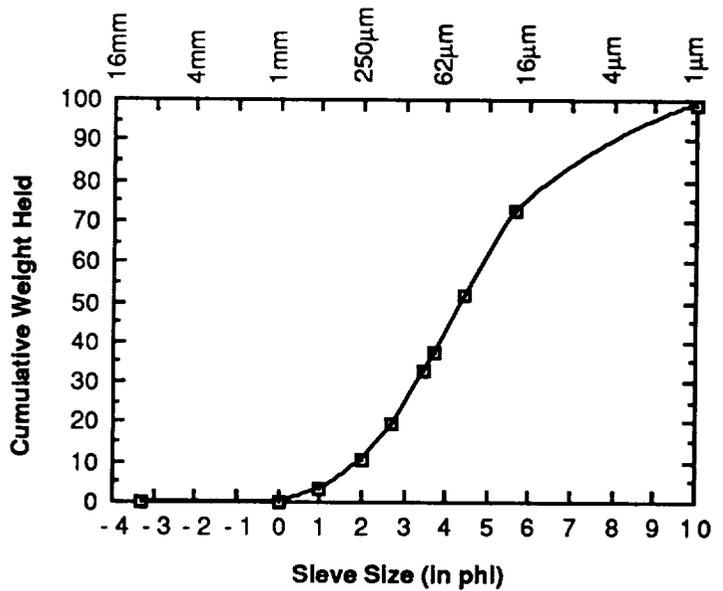
## MATURITY INDEX:

$I_g/FeO = 54$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	3.40
250.00	7.22
150.00	8.81
90.00	13.06
75.00	4.93
45.00	14.30
20.00	20.76
1.00	26.53

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



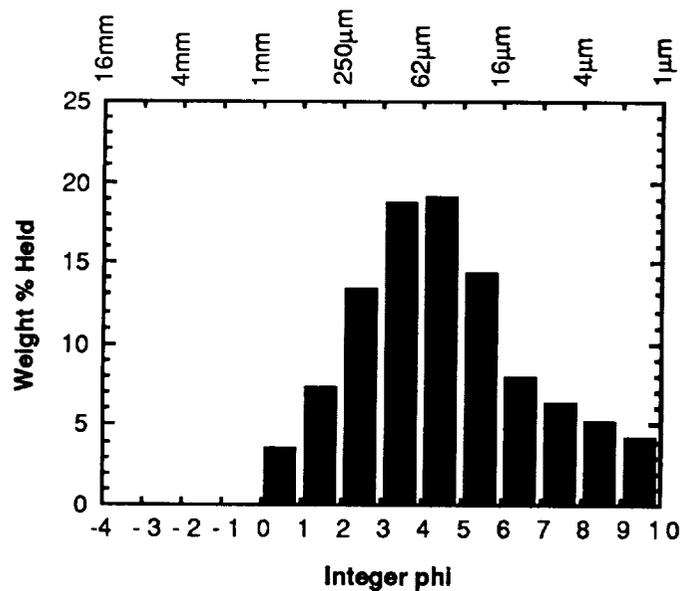
## GRAPHIC AND MOMENT MEASURES

Mean:	4.66
Median:	4.38
Mode:	4.50
Sorting:	2.35
Skewness:	0.20
Kurtosis:	1.12

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.30
16	2.48
25	3.07
50	4.38
75	5.92
84	7.13
95	9.11

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15008

(subsample 15008,204) (Core: depth from surface, 13.5 - 14.0)

D.S. McKay PI

## LOCATION COMMENTS:

Double core 15007-15008 was collected at Station 2, 5m SE of the large boulder on the rim of a 10m crater. Local concentrations of clods on the crater rim, but the site mostly has fine grained character. Lack of blocks suggests a mature, intensely gardened regolith.

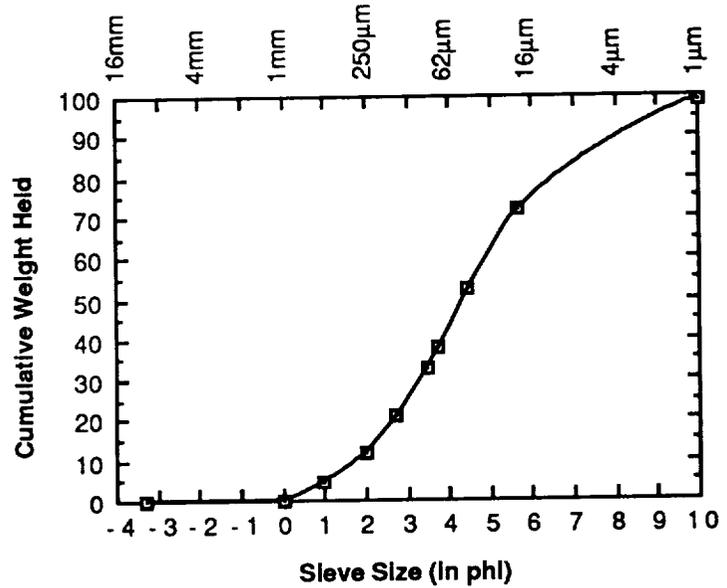
## MATURITY INDEX:

$I_g/FeO = 69$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	4.84
250.00	6.99
150.00	8.93
90.00	11.96
75.00	4.87
45.00	14.71
20.00	19.46
1.00	27.23

CUMULATIVE WEIGHT DISTRIBUTION CURVE



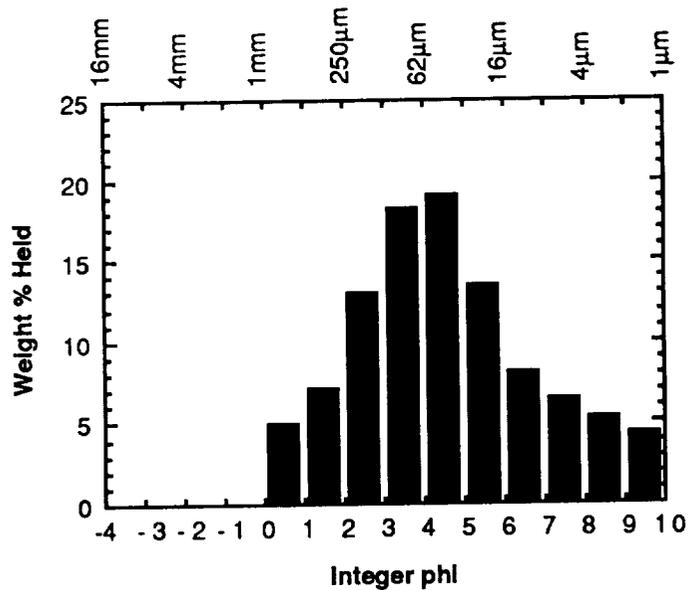
## GRAPHIC AND MOMENT MEASURES

Mean:	4.64
Median:	4.35
Mode:	4.50
Sorting:	2.43
Skewness:	0.18
Kurtosis:	1.12

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.03
16	2.38
25	3.02
50	4.35
75	5.99
84	7.19
95	9.13

SIZE DISTRIBUTION HISTOGRAM



# Soil: 15008

(subsample 15008,203) (Core: depth from surface, 9.0 - 9.5)  
D.S. McKay PI

## LOCATION COMMENTS:

Double core 15007-15008 was collected at Station 2, 5m SE of the large boulder on the rim of a 10m crater. Local concentrations of clods on the crater rim, but the site mostly has fine grained character. Lack of blocks suggests a mature, intensely gardened regolith.

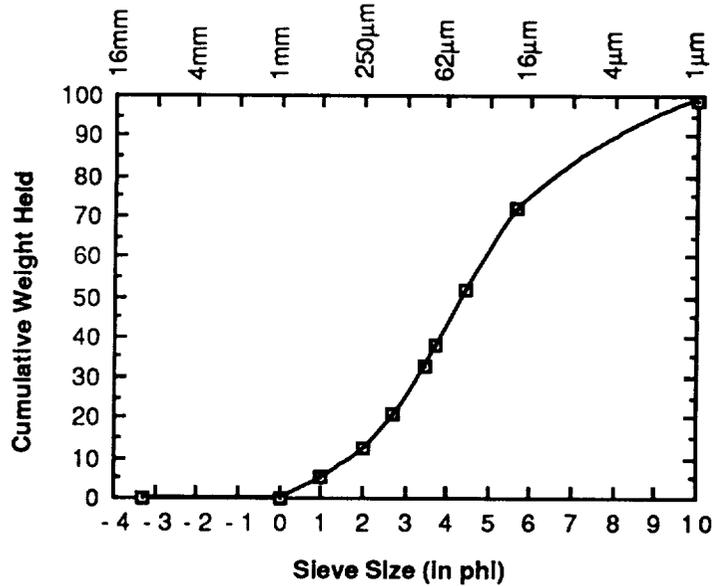
## MATURITY INDEX:

$I_g/FeO = 59$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	5.20
250.00	7.03
150.00	8.44
90.00	11.78
75.00	5.21
45.00	14.04
20.00	19.89
1.00	27.42

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



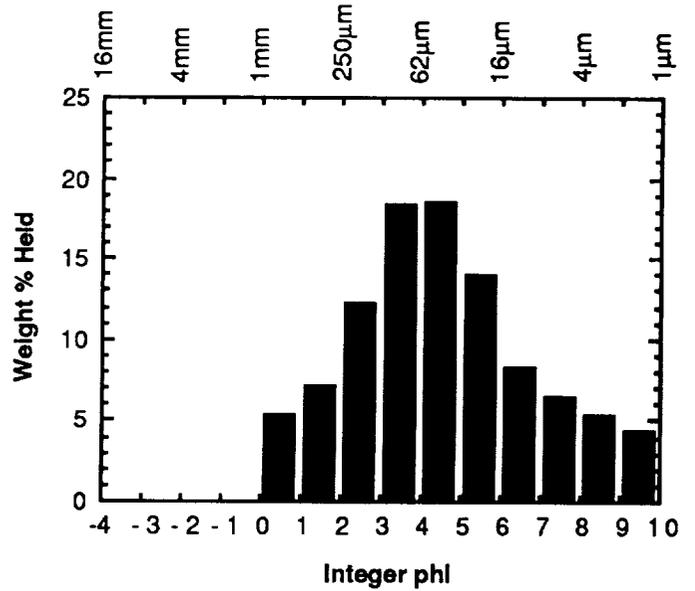
## GRAPHIC AND MOMENT MEASURES

Mean:	4.65
Median:	4.38
Mode:	4.50
Sorting:	2.45
Skewness:	0.17
Kurtosis:	1.13

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.97
16	2.36
25	3.04
50	4.38
75	6.01
84	7.21
95	9.14

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15008

(subsample 15008,202) (Core: depth from surface, 5.0 - 5.5)

D.S. McKay PI

## LOCATION COMMENTS:

Double core 15007-15008 was collected at Station 2, 5m SE of the large boulder on the rim of a 10m crater. Local concentrations of clods on the crater rim, but the site mostly has fine grained character. Lack of blocks suggests a mature, intensely gardened regolith.

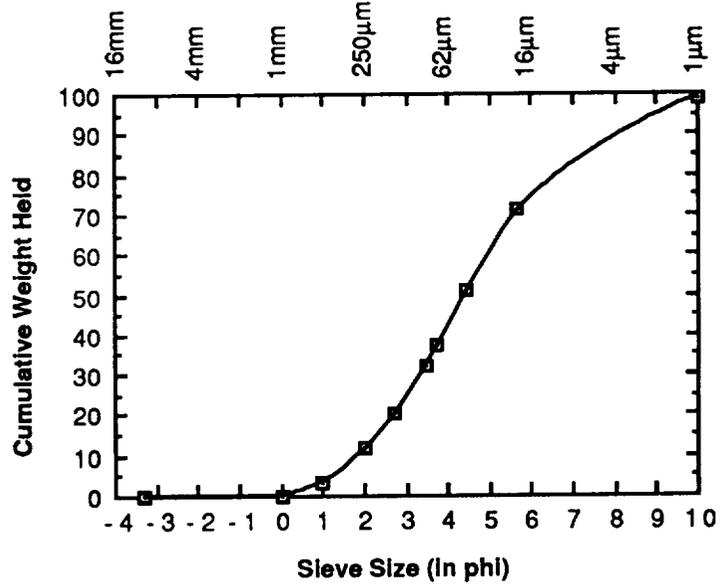
## MATURITY INDEX:

$I_s/FeO = 49$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	3.50
250.00	8.04
150.00	8.63
90.00	12.15
75.00	4.64
45.00	14.03
20.00	19.97
1.00	28.04

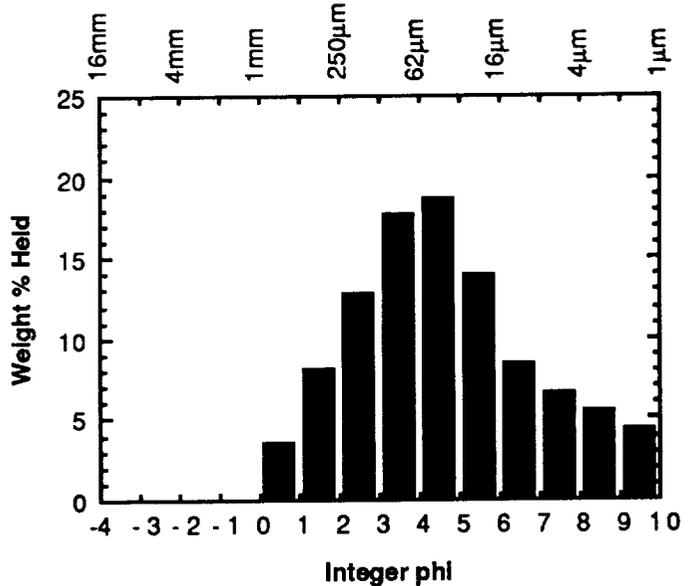
CUMULATIVE WEIGHT DISTRIBUTION CURVE



## GRAPHIC AND MOMENT MEASURES

Mean:	4.70
Median:	4.42
Mode:	4.50
Sorting:	2.41
Skewness:	0.19
Kurtosis:	1.07

SIZE DISTRIBUTION HISTOGRAM



## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.26
16	2.41
25	3.05
50	4.42
75	6.07
84	7.26
95	9.16

# Soil: 15008

(subsample 15008,201) (Core: depth from surface, 0.5 - 1.0)

D.S. McKay PI

## LOCATION COMMENTS:

Double core 15007-15008 was collected at Station 2, 5m SE of the large boulder on the rim of a 10m crater. Local concentrations of clods on the crater rim, but the site mostly has fine grained character. Lack of blocks suggests a mature, intensely gardened regolith.

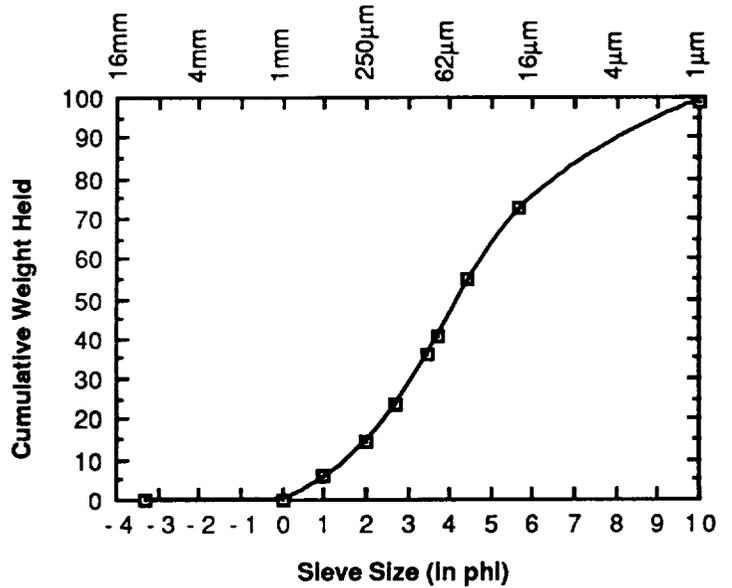
## MATURITY INDEX:

$I_g/FeO = 62$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	5.71
250.00	8.57
150.00	9.53
90.00	12.43
75.00	4.48
45.00	14.22
20.00	17.29
1.00	26.75

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



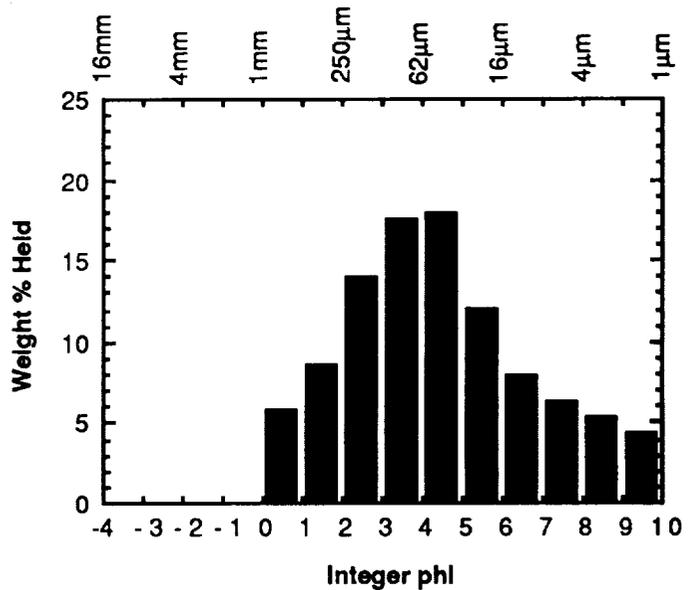
## GRAPHIC AND MOMENT MEASURES

Mean:	4.51
Median:	4.21
Mode:	4.50
Sorting:	2.50
Skewness:	0.19
Kurtosis:	1.08

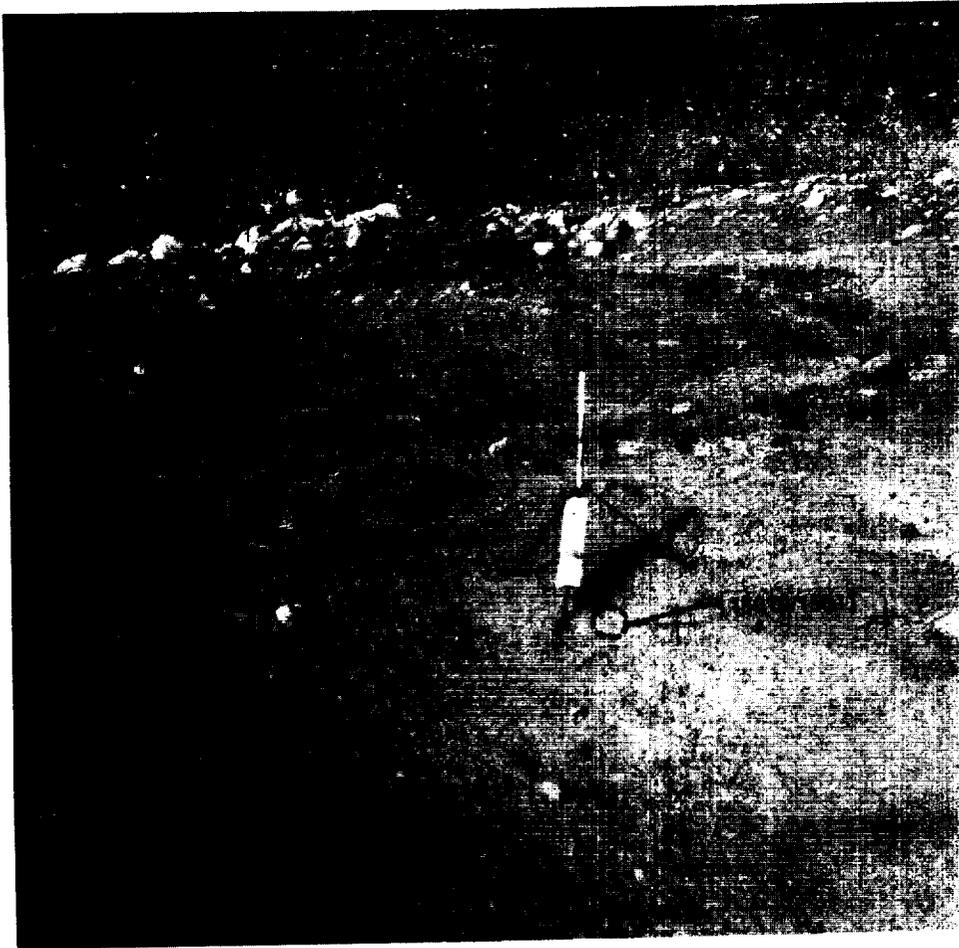
## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.89
16	2.16
25	2.81
50	4.21
75	5.95
84	7.16
95	9.12

## SIZE DISTRIBUTION HISTOGRAM



ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



Core 15010 - 15011  
Sample Environment

AS15-82-11159

Pre-sampling. Hadley Rille  
in the background.

# Soil: 15010

(subsample 15010,1134) (Core: depth from surface, 54.4 - 54.9 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Double core 15010-15011 was collected at Station 9A, 20 m N of the rim of Hadley Rille. The site is level with no fresh craters apparent; fragments < 20 cm are common, boulders > 1 m are scattered. The core area was undisturbed by footprints before sampling; even the uppermost part of the core should be undisturbed.

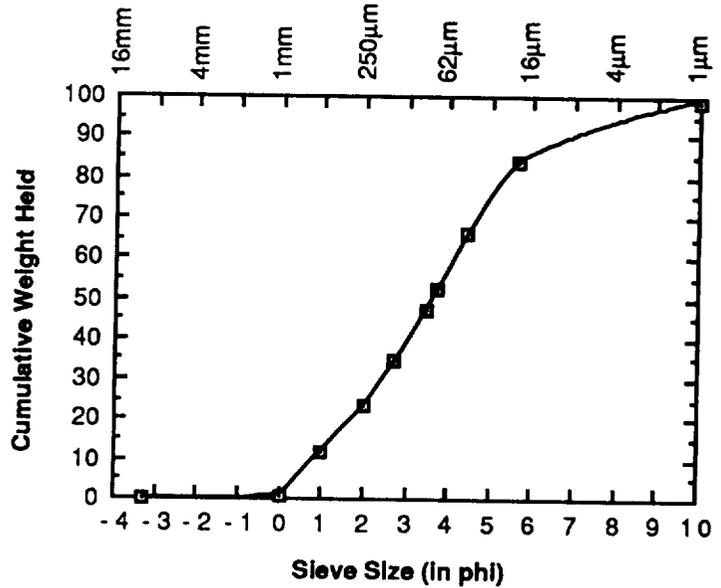
## MATURITY INDEX:

$I_g/FeO = 23$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.49
500.00	11.56
250.00	11.54
150.00	10.92
90.00	12.67
75.00	4.79
45.00	14.07
20.00	17.75
1.00	15.21

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



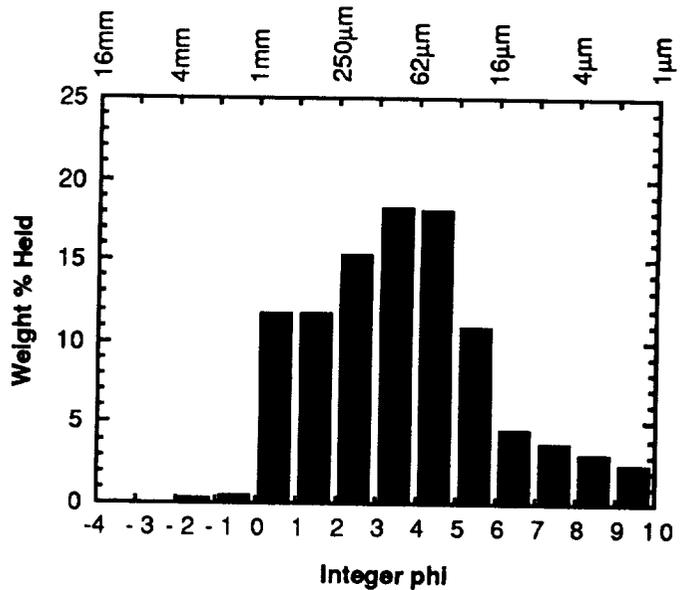
## GRAPHIC AND MOMENT MEASURES

Mean:	3.55
Median:	3.63
Mode:	3.50
Sorting:	2.32
Skewness:	0.07
Kurtosis:	1.15

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.39
16	1.34
25	2.10
50	3.63
75	5.00
84	5.68
95	8.52

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15010

(subsample 15010,1133) (Core: depth from surface, 47.9 - 48.4 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Double core 15010-15011 was collected at Station 9A 20 m N of the rim of Hadley rille. The site is level with no fresh craters apparent; fragments <20 cm are common, boulders >1m are scattered. Core area was undisturbed by footprints before sampling, even the uppermost part of the core should be undisturbed.

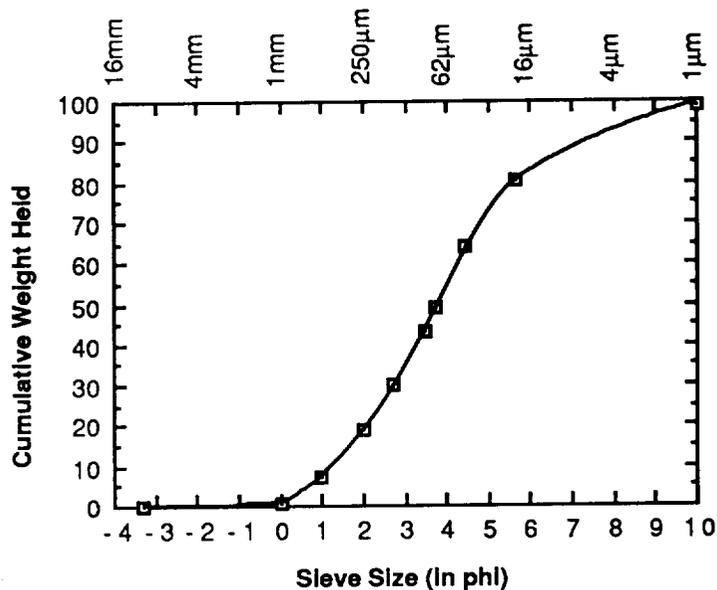
## MATURITY INDEX:

$I_s/FeO = 34$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.66
500.00	6.83
250.00	11.36
150.00	11.13
90.00	13.34
75.00	5.57
45.00	14.86
20.00	16.63
1.00	18.61

CUMULATIVE WEIGHT DISTRIBUTION CURVE



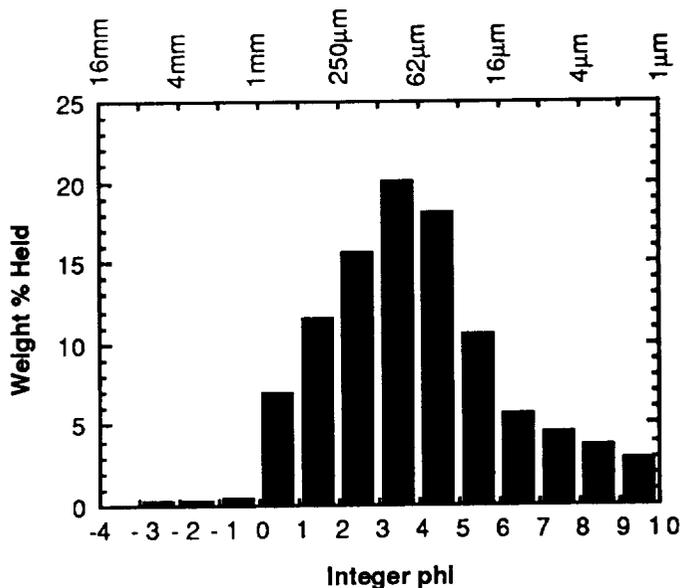
## GRAPHIC AND MOMENT MEASURES

Mean:	3.93
Median:	3.79
Mode:	3.50
Sorting:	2.34
Skewness:	0.16
Kurtosis:	1.21

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.69
16	1.78
25	2.43
50	3.79
75	5.17
84	6.23
95	8.76

SIZE DISTRIBUTION HISTOGRAM



# Soil: 15010

(subsample 15010,1132) (Core: depth from surface, 45.9 - 46.4 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Double core 15010-15011 was collected at Station 9A 20 m N of the rim of Hadley rille. The site is level with no fresh craters apparent; fragments <20 cm are common, boulders >1m are scattered. Core area was undisturbed by footprints before sampling, even the uppermost part of the core should be undisturbed.

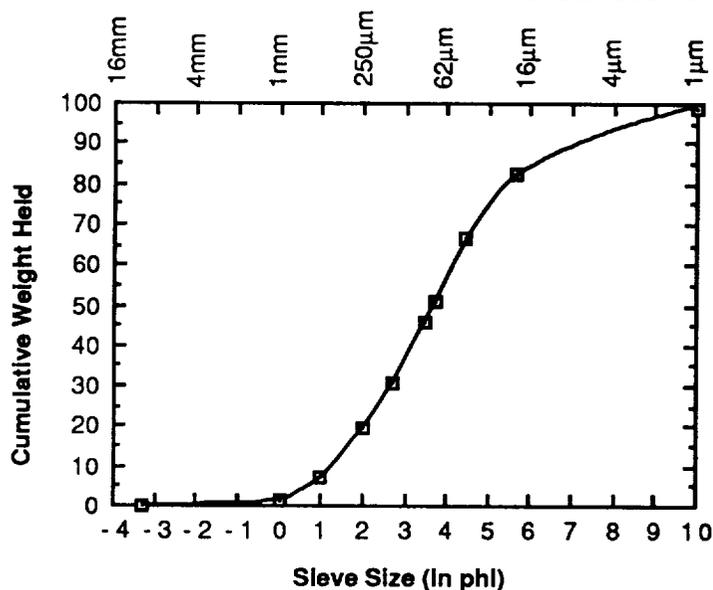
## MATURITY INDEX:

$I_s/FeO = 34$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	1.19
500.00	5.98
250.00	12.38
150.00	11.34
90.00	15.13
75.00	5.16
45.00	15.25
20.00	15.62
1.00	16.96

CUMULATIVE WEIGHT DISTRIBUTION CURVE



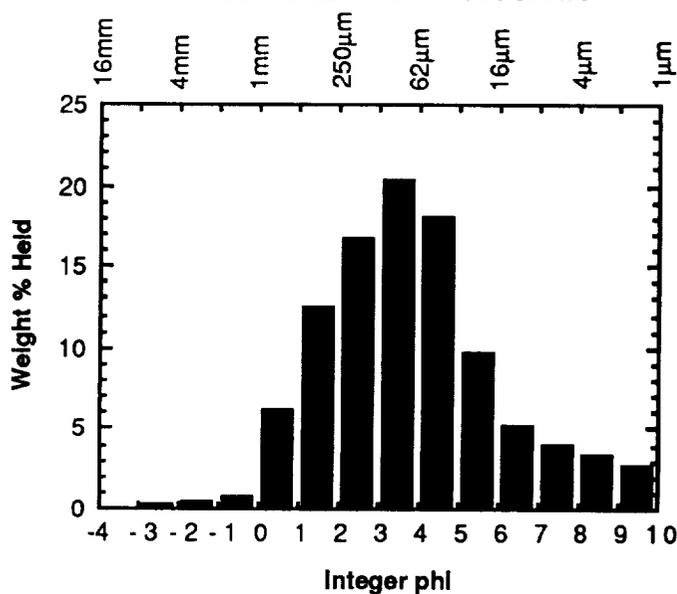
## GRAPHIC AND MOMENT MEASURES

Mean:	3.80
Median:	3.68
Mode:	3.50
Sorting:	2.26
Skewness:	0.17
Kurtosis:	1.23

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.70
16	1.74
25	2.37
50	3.68
75	5.02
84	5.98
95	8.65

SIZE DISTRIBUTION HISTOGRAM



# Soil: 15010

(subsample 15010,1131) (Core: depth from surface, 40.4 - 40.9 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Double core 15010-15011 was collected at Station 9A 20 m N of the rim of Hadley rille. The site is level with no fresh craters apparent; fragments <20 cm are common, boulders >1m are scattered. Core area was undisturbed by footprints before sampling, even the uppermost part of the core should be undisturbed.

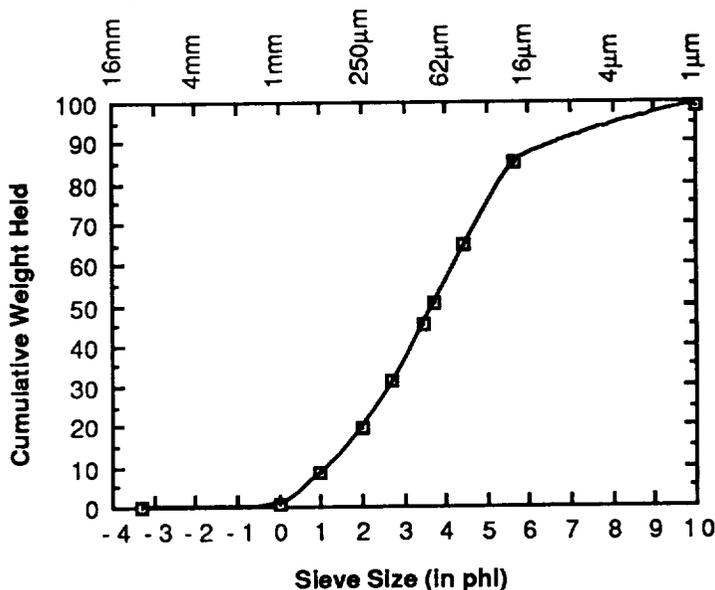
## MATURITY INDEX:

$I_g/FeO = 33$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.42
500.00	8.10
250.00	11.21
150.00	11.48
90.00	14.08
75.00	5.30
45.00	14.42
20.00	20.26
1.00	13.75

CUMULATIVE WEIGHT DISTRIBUTION CURVE



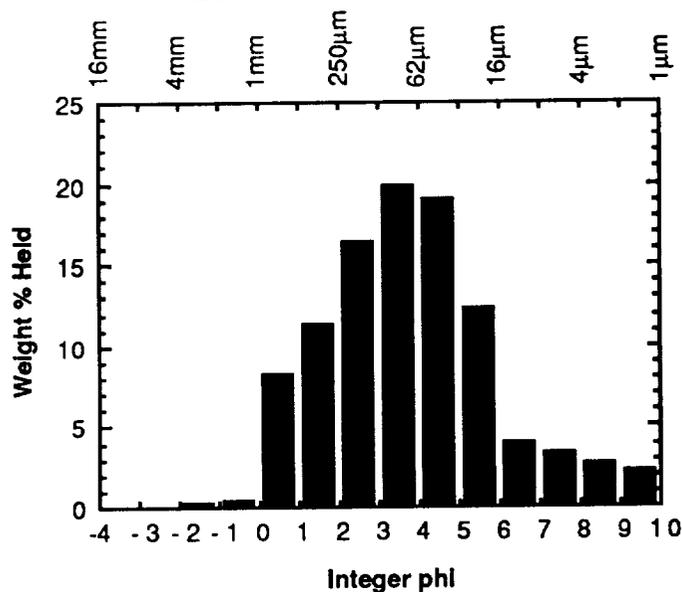
## GRAPHIC AND MOMENT MEASURES

Mean:	3.64
Median:	3.71
Mode:	3.50
Sorting:	2.13
Skewness:	0.08
Kurtosis:	1.20

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.62
16	1.70
25	2.36
50	3.71
75	5.01
84	5.52
95	8.40

SIZE DISTRIBUTION HISTOGRAM



# Soil: 15010

(subsample 15010,1130) (Core: depth from surface, 33.9 - 34.4 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Double core 15010-15011 was collected at Station 9A 20 m N of the rim of Hadley rille. The site is level with no fresh craters apparent; fragments <20 cm are common, boulders >1m are scattered. Core area was undisturbed by footprints before sampling, even the uppermost part of the core should be undisturbed.

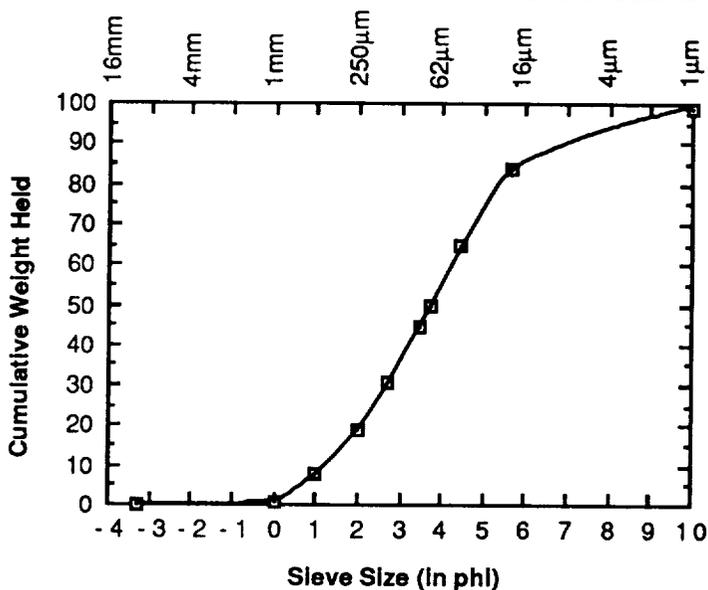
## MATURITY INDEX:

$I_p/FeO = 36$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.59
500.00	7.11
250.00	11.30
150.00	11.60
90.00	13.93
75.00	4.85
45.00	15.17
20.00	19.15
1.00	15.31

CUMULATIVE WEIGHT DISTRIBUTION CURVE



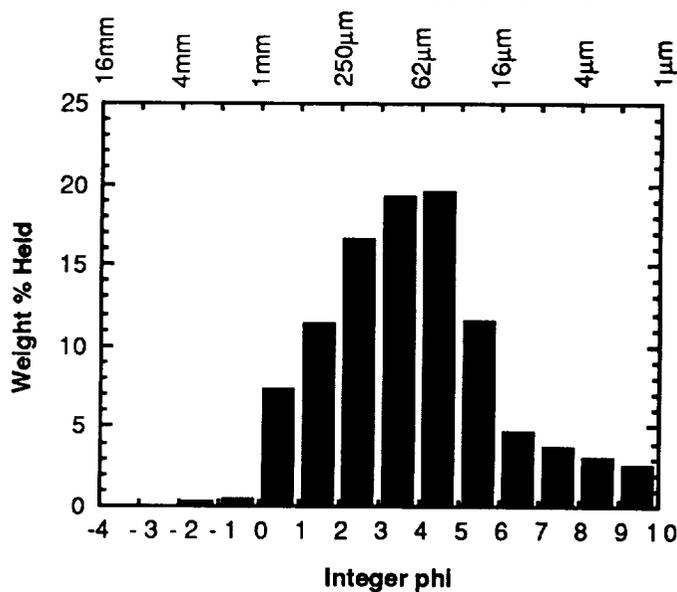
## GRAPHIC AND MOMENT MEASURES

Mean:	3.75
Median:	3.77
Mode:	4.50
Sorting:	2.17
Skewness:	0.10
Kurtosis:	1.22

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.67
16	1.77
25	2.40
50	3.77
75	5.04
84	5.70
95	8.53

SIZE DISTRIBUTION HISTOGRAM



# Soil: 15010

(subsample 15010,1129) (Core: depth from surface, 27.4 - 27.9 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Double core 15010-15011 was collected at Station 9A 20 m N of the rim of Hadley rille. The site is level with no fresh craters apparent; fragments <20 cm are common, boulders >1m are scattered. Core area was undisturbed by footprints before sampling, even the uppermost part of the core should be undisturbed.

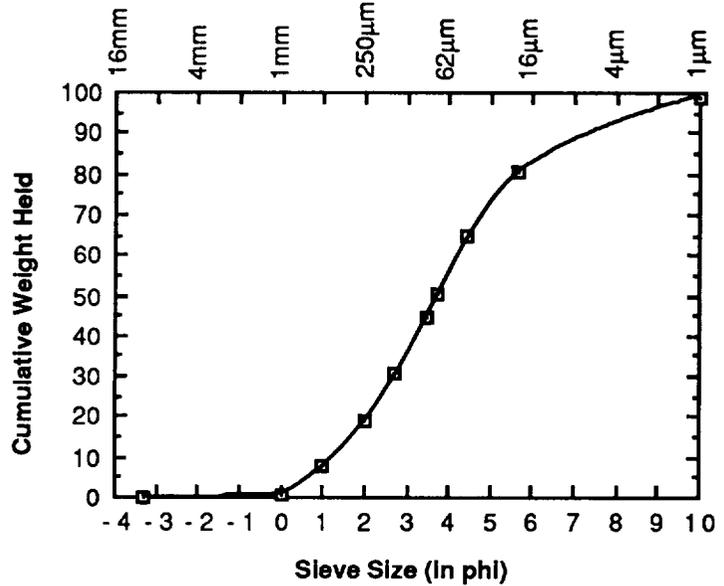
## MATURITY INDEX:

$I_g/FeO = 30$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.90
500.00	6.82
250.00	11.07
150.00	12.00
90.00	13.82
75.00	5.47
45.00	14.76
20.00	15.81
1.00	18.35

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



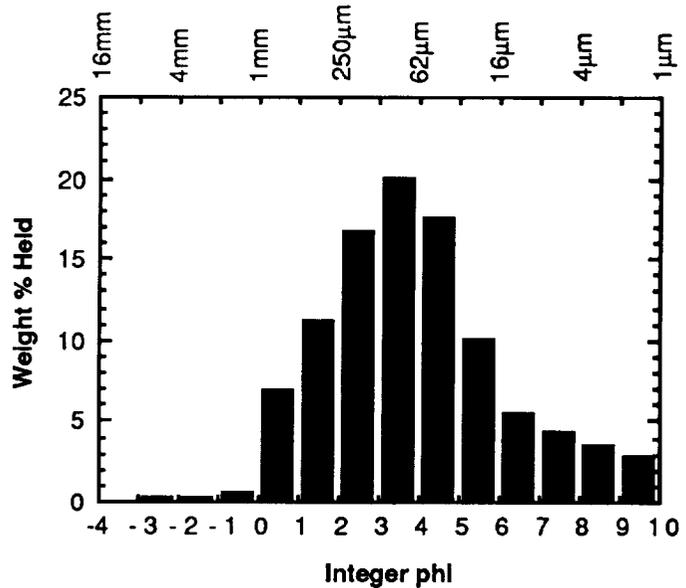
## GRAPHIC AND MOMENT MEASURES

Mean:	3.90
Median:	3.73
Mode:	3.50
Sorting:	2.33
Skewness:	0.18
Kurtosis:	1.21

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.66
16	1.78
25	2.40
50	3.73
75	5.13
84	6.19
95	8.75

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15011

(subsample 15011,2114) (Core: depth from surface, 21.5 - 22.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Double core 15010-15011 was collected at Station 9A 20 m N of the rim of Hadley rille. The site is level with no fresh craters apparent; fragments <20 cm are common, boulders >1m are scattered. Core area was undisturbed by footprints before sampling, even the uppermost part of the core should be undisturbed.

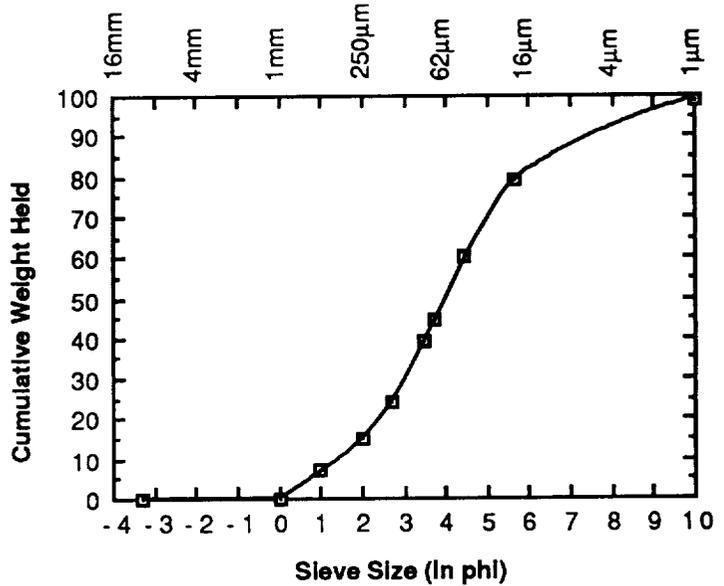
## MATURITY INDEX:

$I_s/FeO = 40$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.25
500.00	6.65
250.00	7.97
150.00	9.56
90.00	14.48
75.00	5.52
45.00	15.56
20.00	19.23
1.00	19.77

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



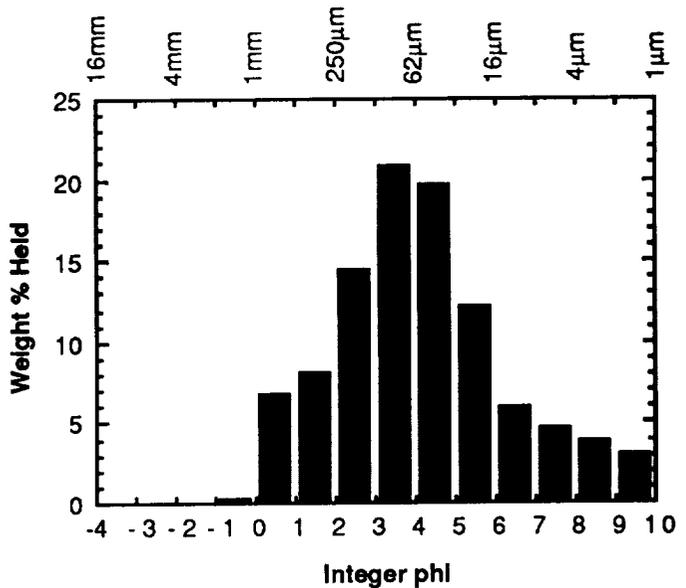
## GRAPHIC AND MOMENT MEASURES

Mean:	4.17
Median:	4.00
Mode:	3.50
Sorting:	2.30
Skewness:	0.16
Kurtosis:	1.31

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.74
16	2.11
25	2.77
50	4.00
75	5.30
84	6.39
95	8.83

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15011

(subsample 15011,2113) (Core: depth from surface, 16.5 - 17.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Double core 15010-15011 was collected at Station 9A 20 m N of the rim of Hadley rille. The site is level with no fresh craters apparent; fragments <20 cm are common, boulders >1m are scattered. Core area was undisturbed by footprints before sampling, even the uppermost part of the core should be undisturbed.

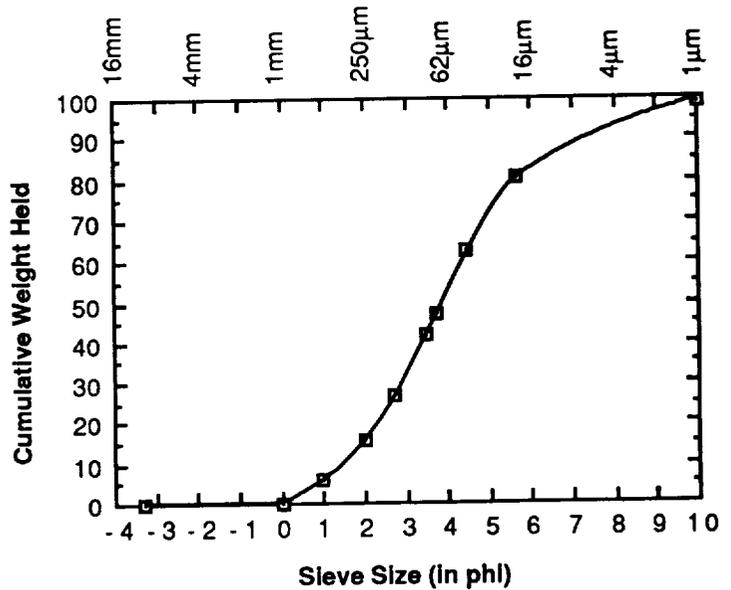
## MATURITY INDEX:

$I_s/FeO = 48$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.28
500.00	5.68
250.00	9.43
150.00	11.26
90.00	14.96
75.00	5.53
45.00	15.58
20.00	17.48
1.00	18.79

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



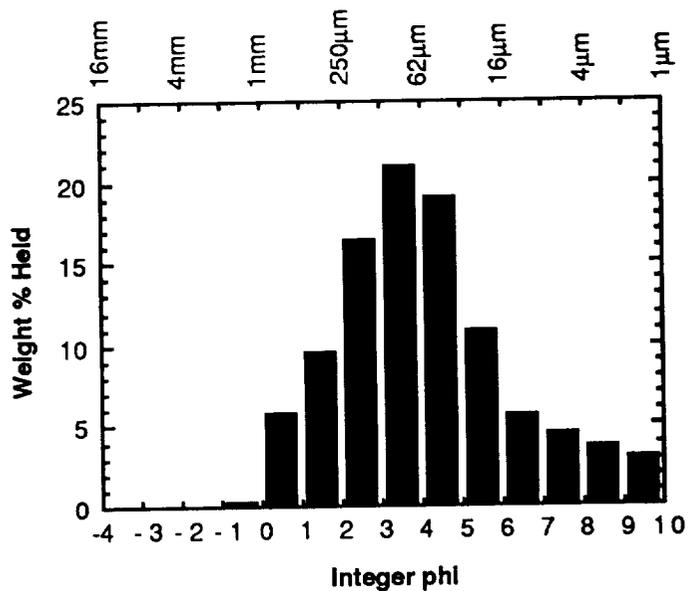
## GRAPHIC AND MOMENT MEASURES

Mean:	4.06
Median:	3.87
Mode:	3.50
Sorting:	2.25
Skewness:	0.19
Kurtosis:	1.27

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.86
16	2.05
25	2.64
50	3.87
75	5.20
84	6.25
95	8.77

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15011

(subsample 15011,2112) (Core: depth from surface, 11.5 - 12.0 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Double core 15010-15011 was collected at Station 9A 20 m N of the rim of Hadley rille. The site is level with no fresh craters apparent; fragments <20 cm are common, boulders >1m are scattered. Core area was undisturbed by footprints before sampling, even the uppermost part of the core should be undisturbed.

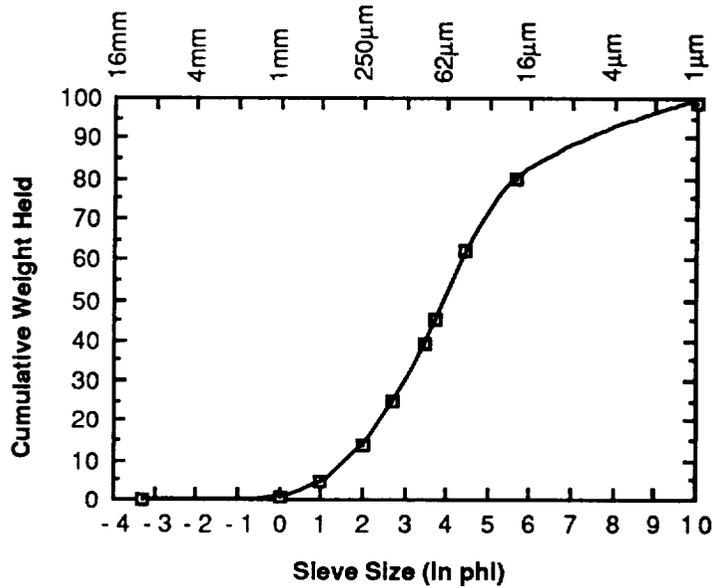
## MATURITY INDEX:

$I_g/FeO = 46$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.44
500.00	3.97
250.00	9.52
150.00	11.03
90.00	13.97
75.00	5.98
45.00	17.14
20.00	18.03
1.00	18.94

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



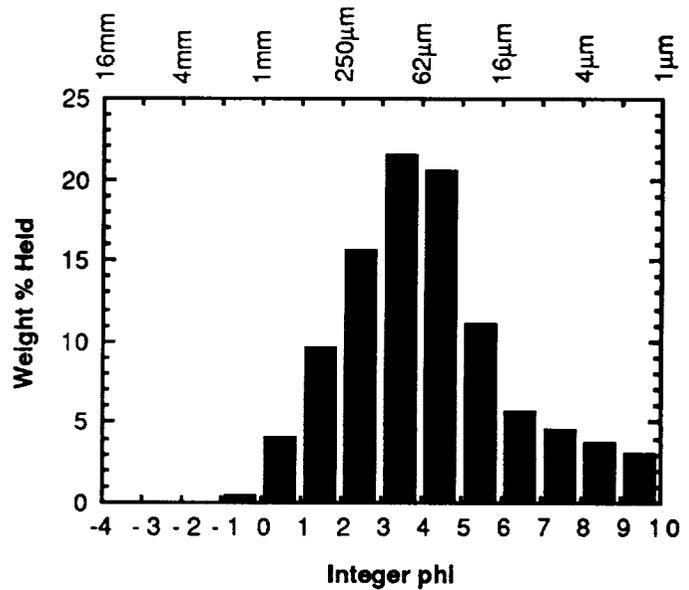
## GRAPHIC AND MOMENT MEASURES

Mean:	4.13
Median:	3.96
Mode:	3.50
Sorting:	2.19
Skewness:	0.19
Kurtosis:	1.27

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.11
16	2.16
25	2.74
50	3.96
75	5.21
84	6.28
95	8.78

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 15011

(subsample 15011,2111) (Core: depth from surface, 6.5 - 7.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Double core 15010-15011 was collected at Station 9A 20 m N of the rim of Hadley rille. The site is level with no fresh craters apparent; fragments <20 cm are common, boulders >1m are scattered. Core area was undisturbed by footprints before sampling, even the uppermost part of the core should be undisturbed.

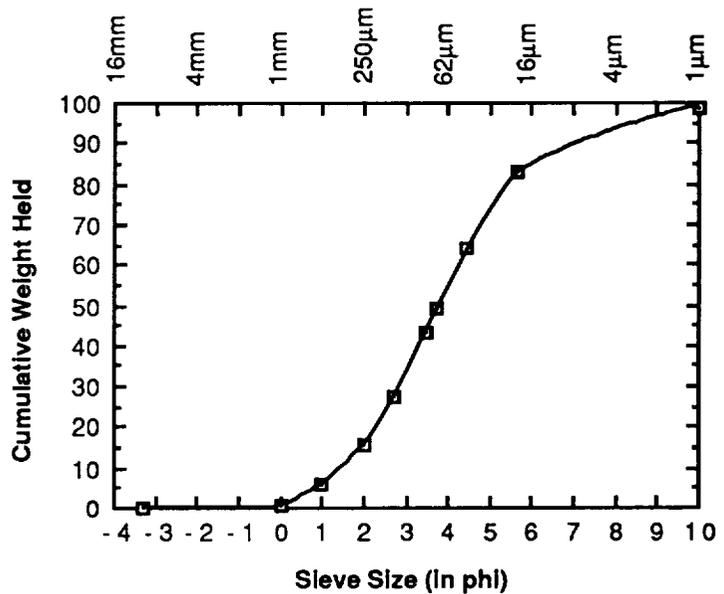
## MATURITY INDEX:

$I_2/FeO = 40$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.39
500.00	5.81
250.00	9.61
150.00	11.90
90.00	15.55
75.00	5.68
45.00	15.04
20.00	18.91
1.00	16.11

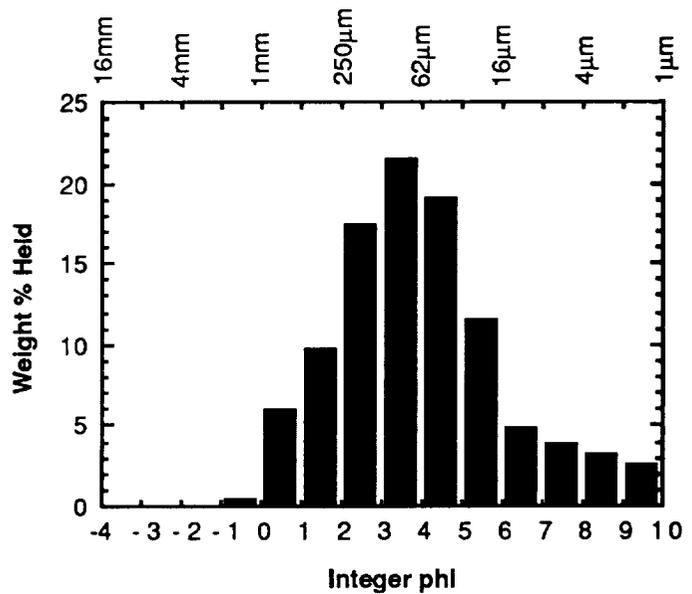
## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## GRAPHIC AND MOMENT MEASURES

Mean:	3.88
Median:	3.79
Mode:	3.50
Sorting:	2.13
Skewness:	0.16
Kurtosis:	1.27

## SIZE DISTRIBUTION HISTOGRAM



## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.82
16	2.02
25	2.58
50	3.79
75	5.08
84	5.84
95	8.60

# Soil: 15011

(subsample 15011,2110) (Core: depth from surface, 3.5 - 4.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Double core 15010-15011 was collected at Station 9A 20 m N of the rim of Hadley rille. The site is level with no fresh craters apparent; fragments <20 cm are common, boulders >1m are scattered. Core area was undisturbed by footprints before sampling, even the uppermost part of the core should be undisturbed.

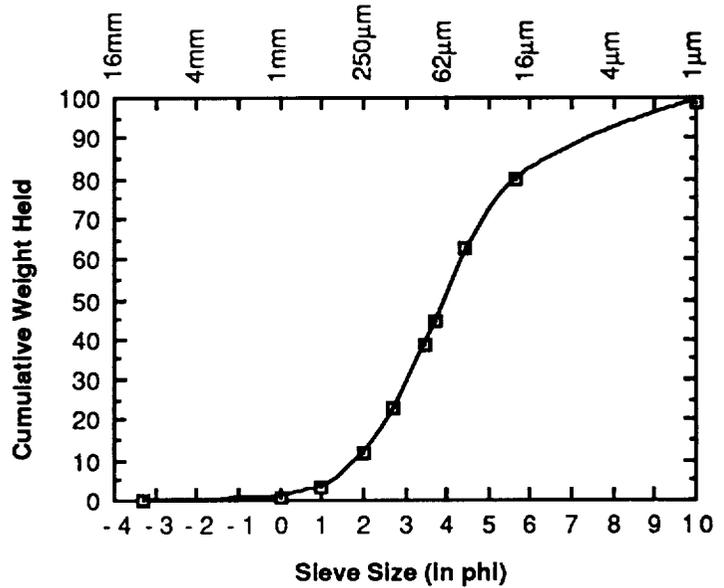
## MATURITY INDEX:

$I_s/FeO = 40$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.92
500.00	2.46
250.00	8.29
150.00	11.09
90.00	16.06
75.00	5.78
45.00	18.05
20.00	17.35
1.00	19.01

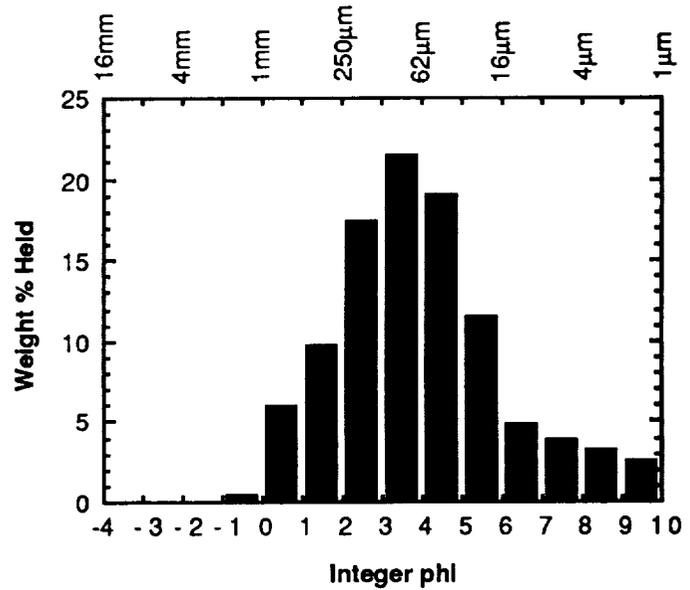
## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## GRAPHIC AND MOMENT MEASURES

Mean:	4.19
Median:	3.96
Mode:	3.50
Sorting:	2.12
Skewness:	0.23
Kurtosis:	1.30

## SIZE DISTRIBUTION HISTOGRAM



## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.30
16	2.33
25	2.84
50	3.96
75	5.19
84	6.28
95	8.79

# Soil: 15011

(subsample 15011,2109) (Core: depth from surface, 0.4 - 1.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Double core 15010-15011 was collected at Station 9A 20 m N of the rim of Hadley rille. The site is level with no fresh craters apparent; fragments <20 cm are common, boulders >1m are scattered. Core area was undisturbed by footprints before sampling, even the uppermost part of the core should be undisturbed.

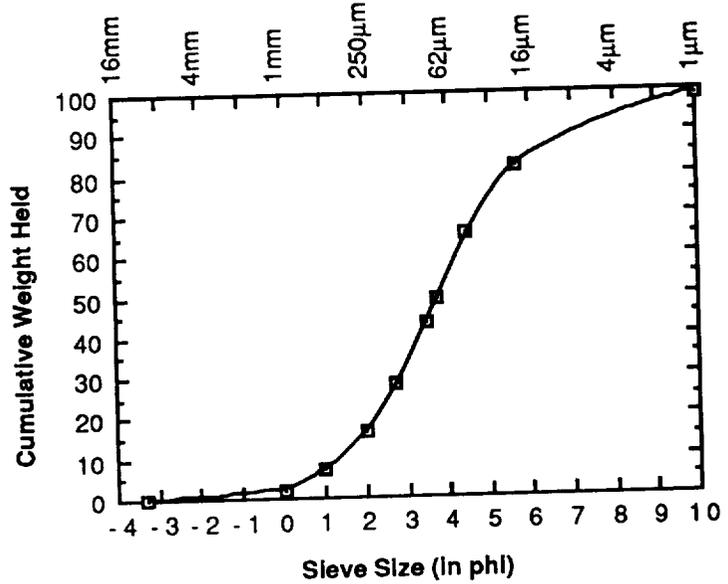
## MATURITY INDEX:

$I_g/FeO = 43$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	2.23
500.00	4.97
250.00	9.33
150.00	11.56
90.00	15.19
75.00	5.96
45.00	16.29
20.00	16.36
1.00	17.10

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



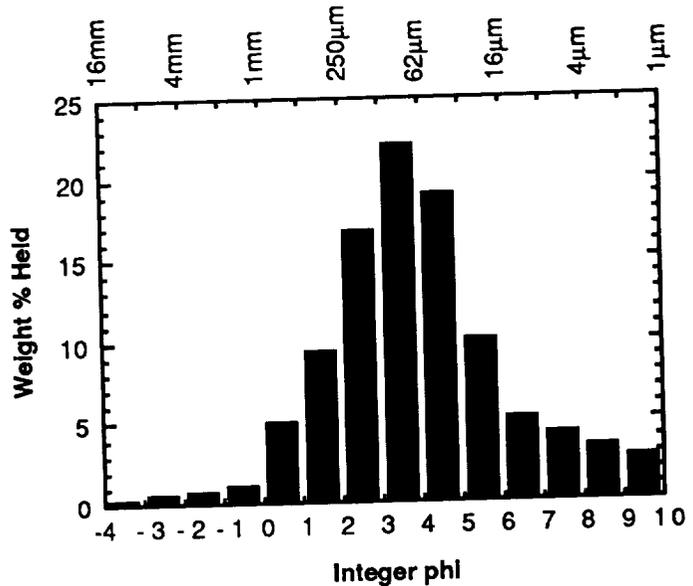
## GRAPHIC AND MOMENT MEASURES

Mean:	3.91
Median:	3.77
Mode:	3.50
Sorting:	2.23
Skewness:	0.16
Kurtosis:	1.32

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.63
16	1.95
25	2.56
50	3.77
75	5.05
84	6.00
95	8.66

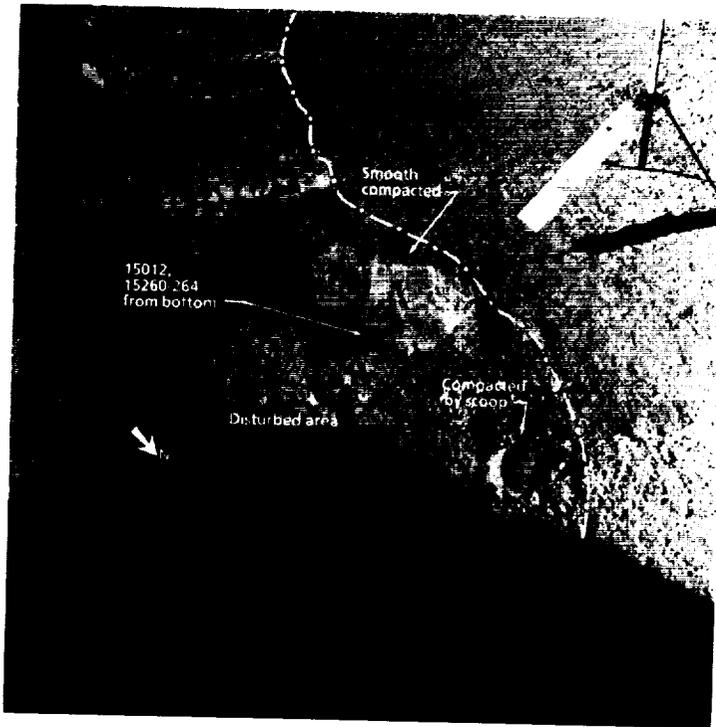
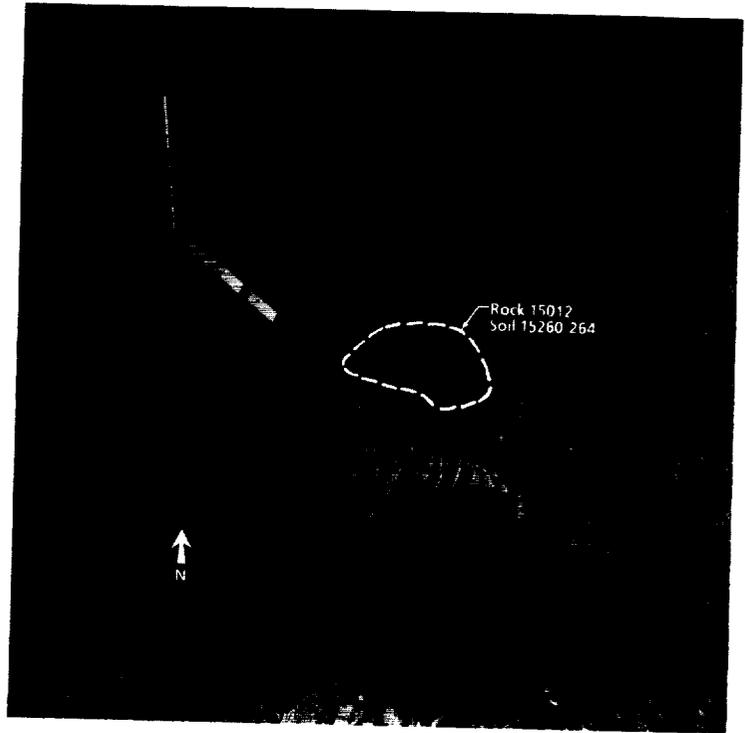
## SIZE DISTRIBUTION HISTOGRAM



15012 Sample Environment

AS15-86-11641

Pre-sampling. 12 meter in immediate background.



15012 Sample Environment

AS15-86-11643

Post-sampling.

**Soil: 15012**  
 (subsample 15012,136)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Soil collected with rock fragments 15260-15264 from the bottom of a trench dug into the south rim of a 12 m crater at station 6. The rim of this crater is asymmetric; the north rim is hard, granular, and littered with fragments, and the south rim is softer and smoother.

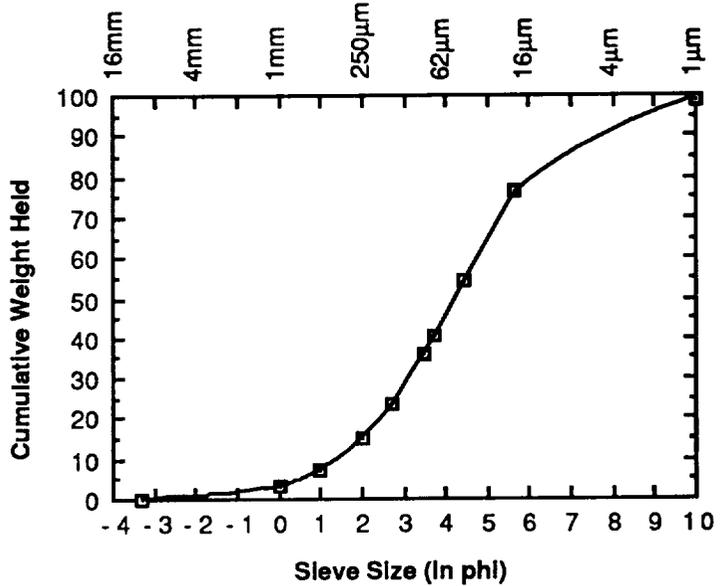
**MATURITY INDEX:**

$I_p/FeO = 66$  (mature)

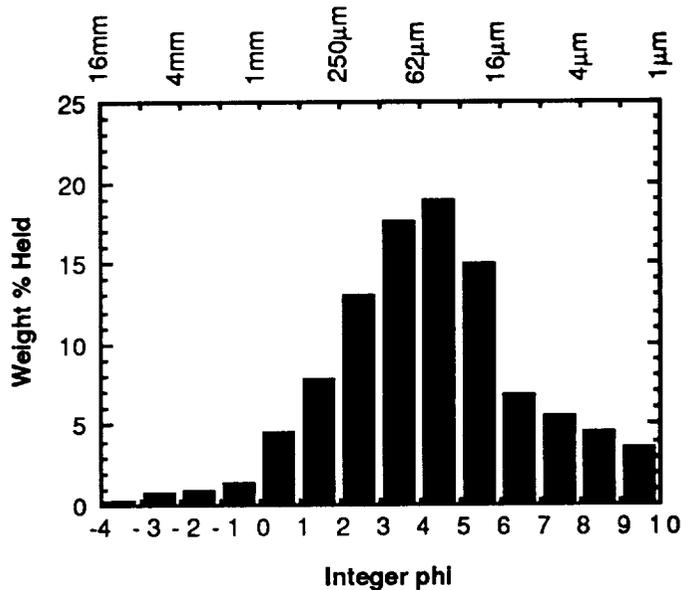
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	2.96
500.00	4.36
250.00	7.60
150.00	8.68
90.00	12.31
75.00	4.54
45.00	13.79
20.00	21.92
1.00	22.83

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**

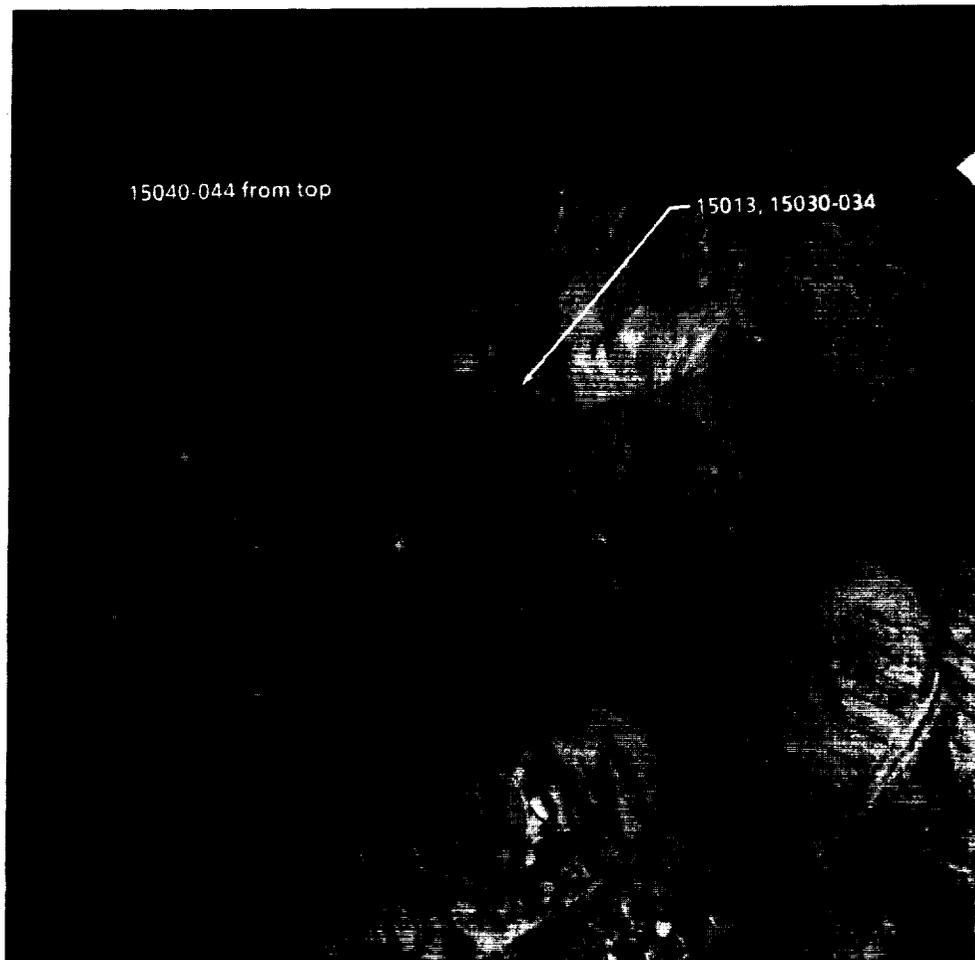


**GRAPHIC AND MOMENT MEASURES**

Mean:	4.37
Median:	4.25
Mode:	4.50
Sorting:	2.44
Skewness:	0.10
Kurtosis:	1.26

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.54
16	2.11
25	2.83
50	4.25
75	5.58
84	6.76
95	8.98



15013 Sample Environment

AS15-92-12439

Post-sampling. Trench site  
near ALSEP.

**Soil: 15013**  
 (subsample 15013,94)  
 D.S. McKay PI

**LOCATION COMMENTS:**

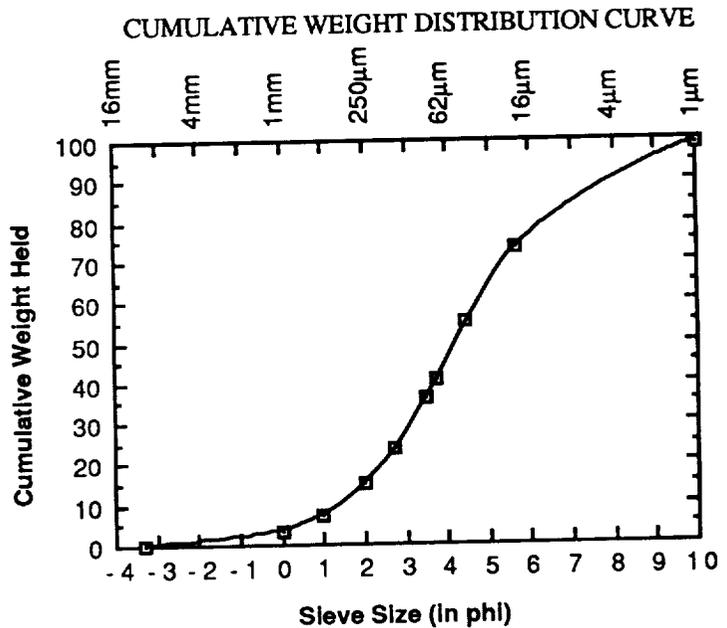
Soil 15013 and chips 15030-15034 were taken from the bottom of a trench 50 m from ALSEP central station at Site 8. The trench area is similar to the ALSEP area; a smooth, hummocky surface of fine grained material. The trench wall was uniform; it did not penetrate a hard layer of material found elsewhere at Site 8.

**MATURITY INDEX:**

$I_s/FeO = 77$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	3.48
500.00	3.87
250.00	7.78
150.00	8.41
90.00	12.30
75.00	4.75
45.00	14.36
20.00	18.38
1.00	25.66

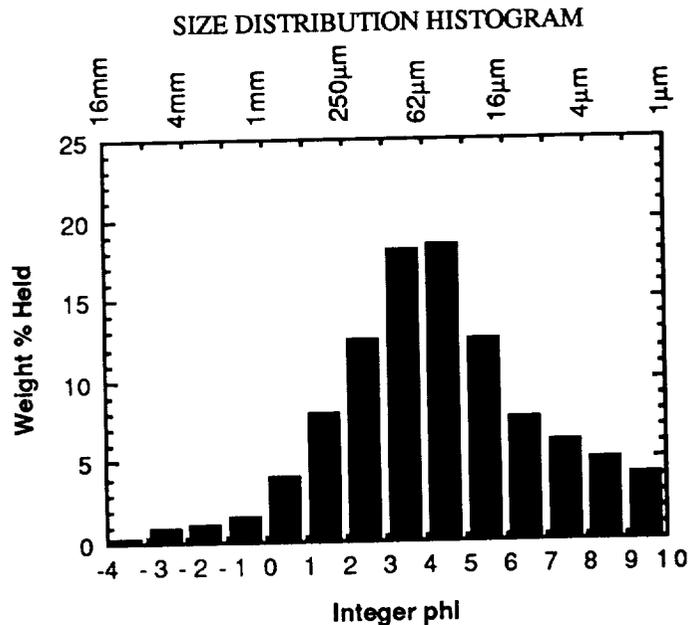


**GRAPHIC AND MOMENT MEASURES**

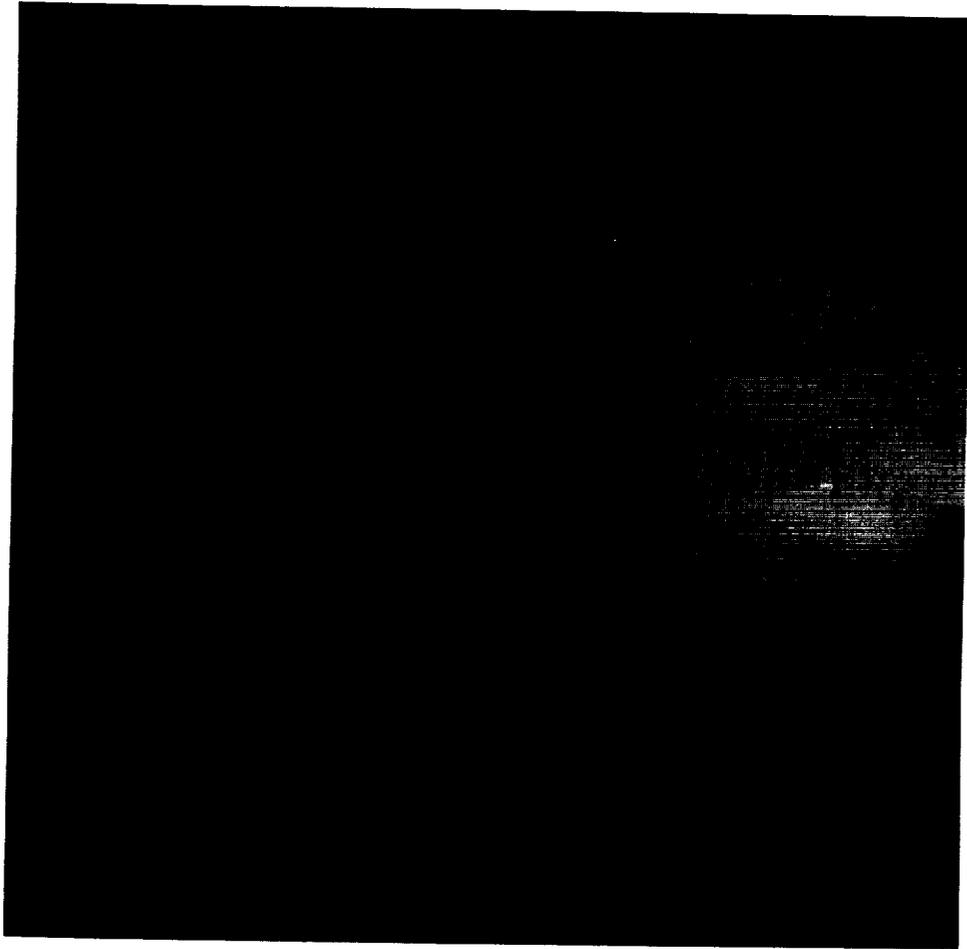
Mean:	4.45
Median:	4.22
Mode:	4.50
Sorting:	2.55
Skewness:	0.14
Kurtosis:	1.18

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.47
16	2.09
25	2.84
50	4.22
75	5.83
84	7.06
95	9.08



ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



15020 Sample Environment

AS15-85-11388

Pre-sampling, the high  
camera angle from LM  
makes craters appear more  
pronounced.

**Soil: 15020**  
(subsample 15021,38)  
D.S. McKay PI

**LOCATION COMMENTS:**

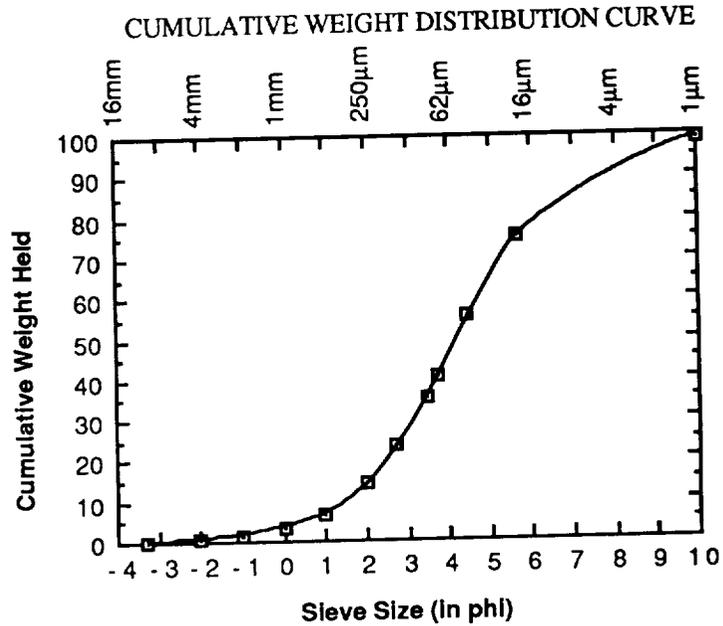
This is the contingency sample collected 12 m west of the LM +Z footpad. The surface material here is soft and fine grained. The sample was taken on a small flat between two subdued 1m craters. The sample sieved includes a 1.1g glass coated microbreccia, but excludes a 77 gm coherent breccia.

**MATURITY INDEX:**

$I_g/FeO = 70$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.68
2000.00	0.95
1000.00	1.90
500.00	3.25
250.00	7.32
150.00	9.25
90.00	11.87
75.00	5.16
45.00	14.88
20.00	19.71
1.00	24.03

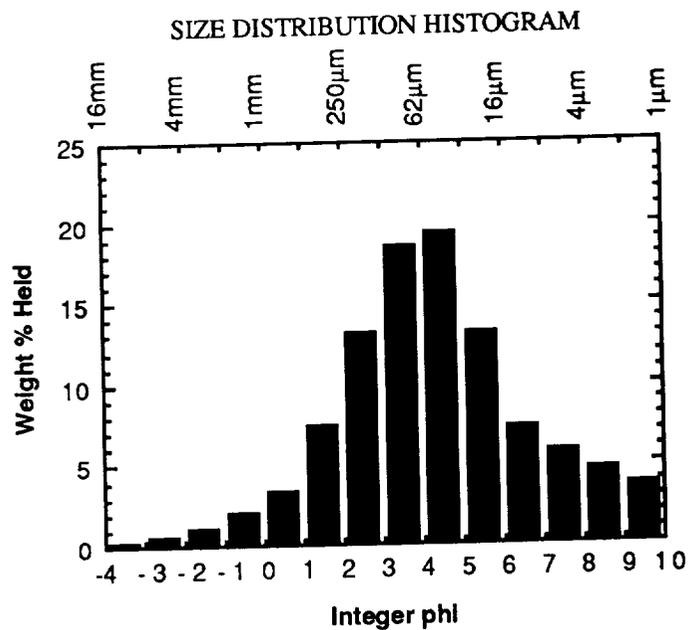


**GRAPHIC AND MOMENT MEASURES**

Mean:	4.43
Median:	4.21
Mode:	4.50
Sorting:	2.47
Skewness:	0.13
Kurtosis:	1.25

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.52
16	2.18
25	2.85
50	4.21
75	5.65
84	6.89
95	9.02



**Soil: 15020**  
 (subsample 15021,2)  
 E.K. Gibson PI

**LOCATION COMMENTS:**

This is the contingency sample collected 12 meters west of the LM +Z footpad. The surface material here is soft and fine grained. The sample was taken on a small flat between two subdued 1 meter craters. The sample sieved includes a 1.1 gm glass coated microbreccia, but excludes a 77 gm coherent breccia.

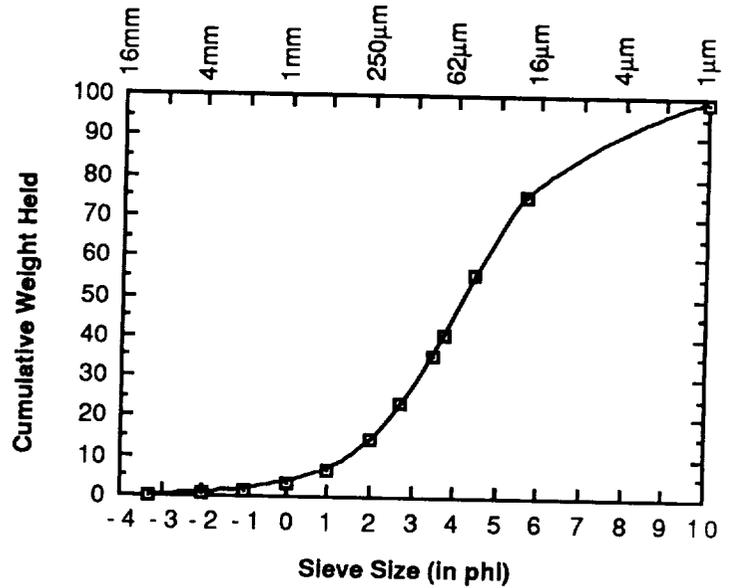
**MATURITY INDEX:**

$I_g/FeO = 70$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.68
2000.00	0.95
1000.00	1.90
500.00	3.25
250.00	7.32
150.00	9.25
90.00	11.87
75.00	5.16
45.00	14.88
20.00	19.71
1.00	24.03

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



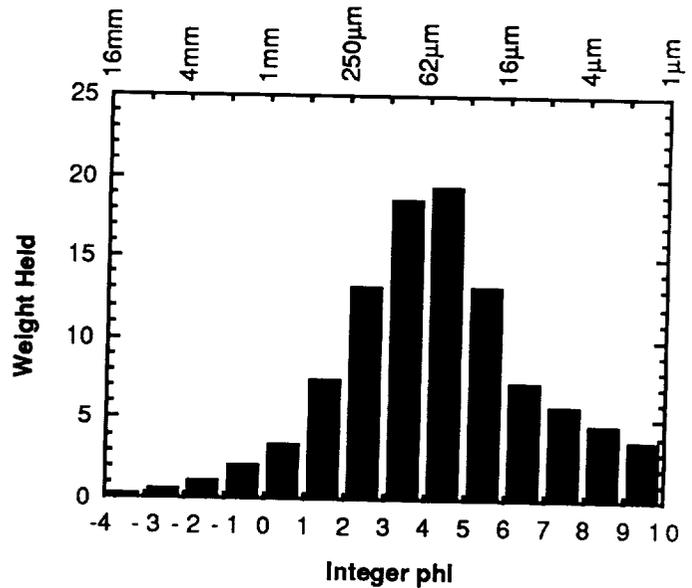
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.43
Median:	4.21
Mode:	4.50
Sorting:	2.47
Skewness:	0.13
Kurtosis:	1.25

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.52
16	2.18
25	2.85
50	4.21
75	5.65
84	6.89
95	9.02

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 15030**  
 (subsample 15031,68)  
 W.V. Engelhardt PI

**LOCATION COMMENTS:**

At Station 8 Astronaut Irwin dug the deep trench; samples 15030-15034 were taken from the bottom of the trench. The trench area is similar to the area near the ALSEP, a smooth, hummocky surface of fine grained material with rare, cobble sized fragments not visibly related to any particular crater. The trench wall was described by the astronauts as uniform, with perhaps a slight color darkening in the middle part, above a hard layer which was not penetrated, but just reached at a depth of about 35 cm.

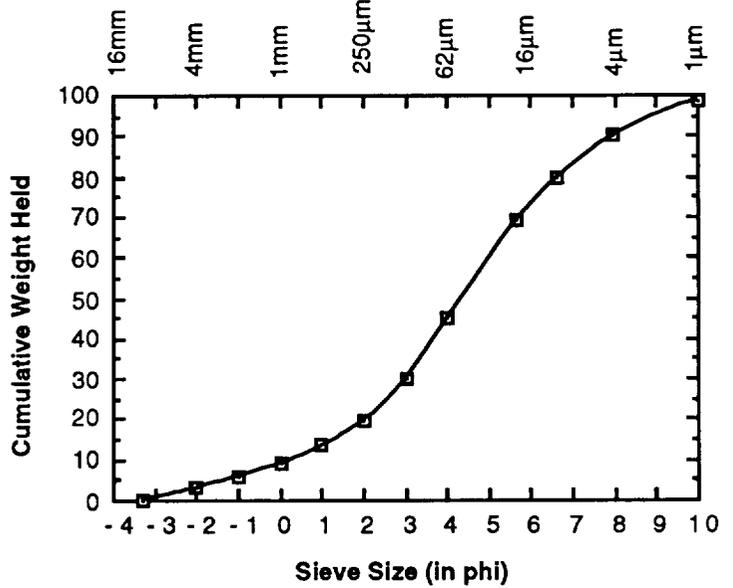
**MATURITY INDEX:**

$I_s/FeO = 68$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	3.03
2000	2.86
1000	3.03
500	4.5
250	6.29
125	10.16
63	15.01
20	24.27
10	10.88
4	10.16
1	8.81

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



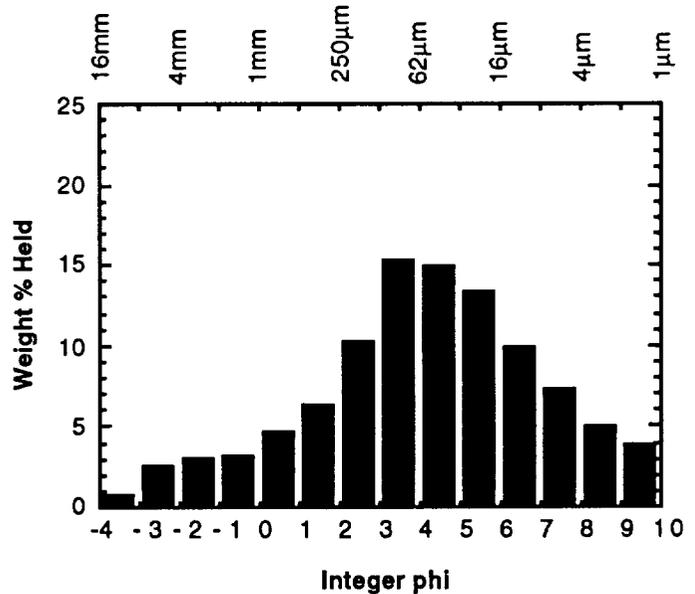
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.3
Median:	4.33
Mode:	3.5
Sorting:	2.97
Skewness:	-0.06
Kurtosis:	1.17

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.3
16	1.46
25	2.57
50	4.33
75	6.15
84	7.1
95	8.96

**SIZE DISTRIBUTION HISTOGRAM**

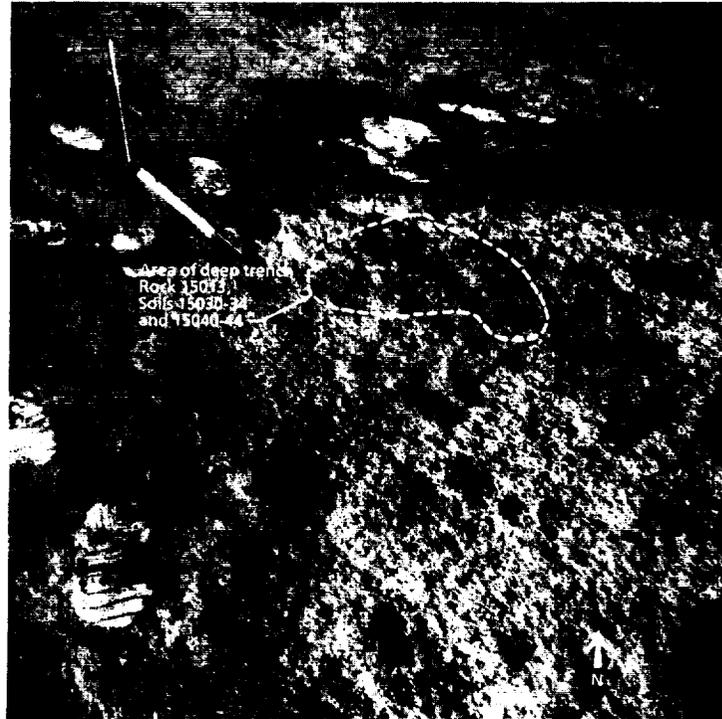




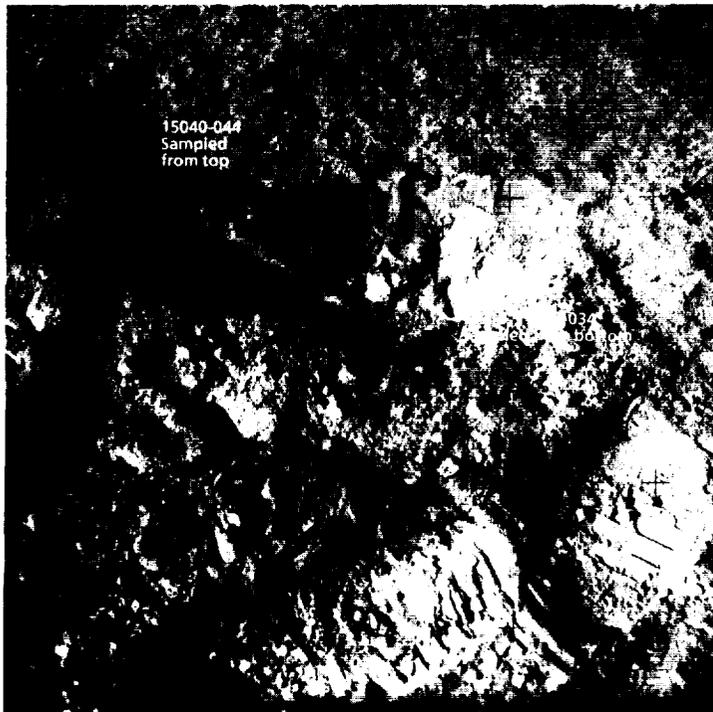
15030 Sample Environment

AS15-92-12417

Pre-sampling.



Area of deep trench  
Rock 15033-1  
Soils 15030-34  
and 15040-44



15040-044  
Sampled  
from top

15033-1  
15030-34  
15040-44

15030 Sample Environment

AS15-92-12439

Post-sampling, note  
compacted trench walls.

**Soil: 15030**  
(subsample 15031,31)  
D.S. McKay PI

**LOCATION COMMENTS:**

At Station 8 Astronaut Irwin dug the deep trench; samples 15030-15034 were taken from the bottom of the trench. The trench area is similar to the area near the ALSEP, a smooth, hummocky surface of fine grained material with rare, cobble sized fragments not visibly related to any particular crater. The trench wall was described by the astronauts as uniform, with perhaps a slight color darkening in the middle part, above a hard layer which was not penetrated, but just reached at a depth of about 35 cm.

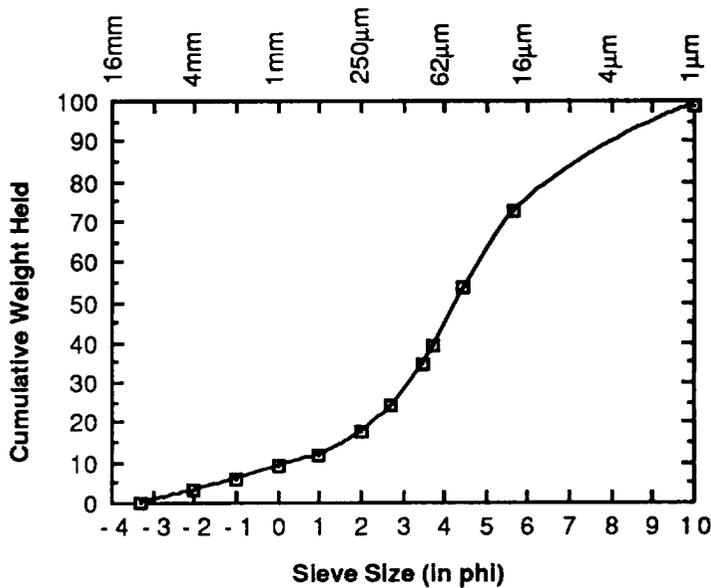
**MATURITY INDEX:**

$I_s/FeO = 68$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	3.03
2000.00	2.86
1000.00	3.03
500.00	3.00
250.00	5.79
150.00	6.58
90.00	10.42
75.00	4.62
45.00	14.24
20.00	18.94
1.00	26.48

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



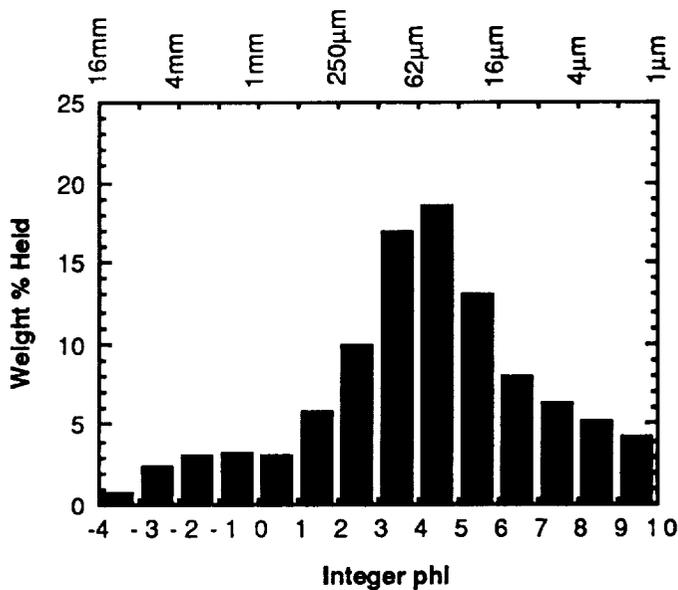
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.39
Median:	4.28
Mode:	4.50
Sorting:	2.92
Skewness:	-0.01
Kurtosis:	1.37

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.30
16	1.75
25	2.80
50	4.28
75	5.91
84	7.13
95	9.11

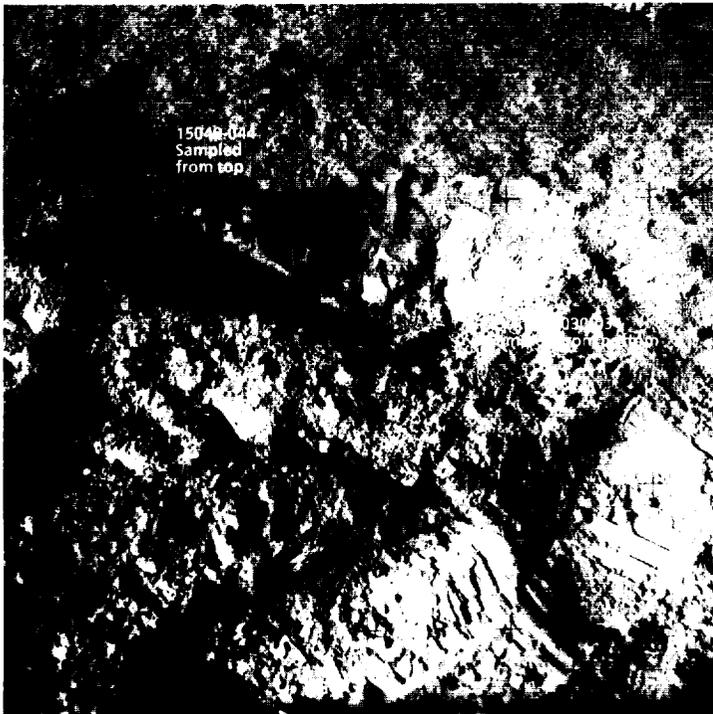
**SIZE DISTRIBUTION HISTOGRAM**



15040 Sample Environment

AS15-92-12417

Pre-sampling.



15040 Sample Environment

AS15-92-12439

Post-sampling, note  
compacted trench walls.



**Soil: 15040**  
(subsample 15041,34)  
D.S. McKay PI

**LOCATION COMMENTS:**

At Station 8 Astronaut Irwin dug the deep trench; samples 15040-15044 were taken from the top of the trench. The trench area is similar to the area near the ALSEP, a smooth, hummocky surface of fine grained material with rare, cobble sized fragments not visibly related to any particular crater. The trench wall was described by the astronauts as uniform, with perhaps a slight color darkening in the middle part, above a hard layer which was not penetrated, but just reached at a depth of about 35 cm. One small fresh crater occurs a few meters north of the trench, but it is too distant to add a significant layer of ejecta to the top of the trench area.

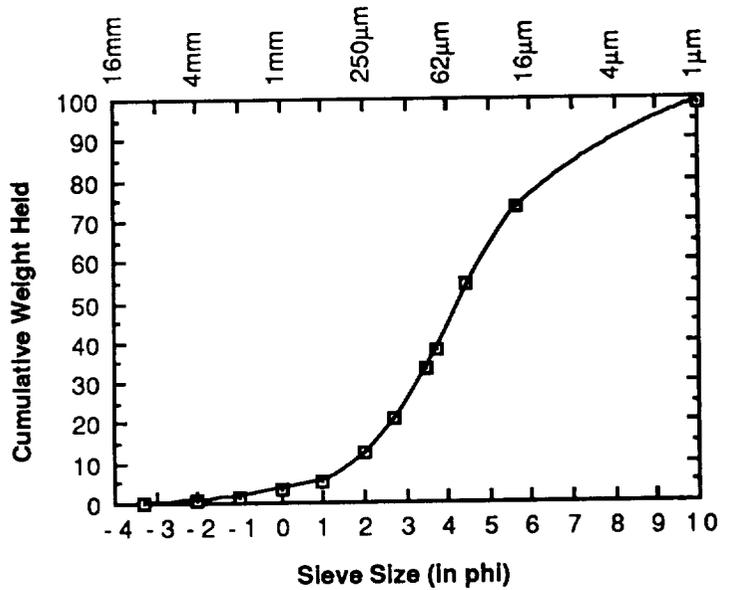
**MATURITY INDEX:**

$I_s/FeO = 94$  (mature)

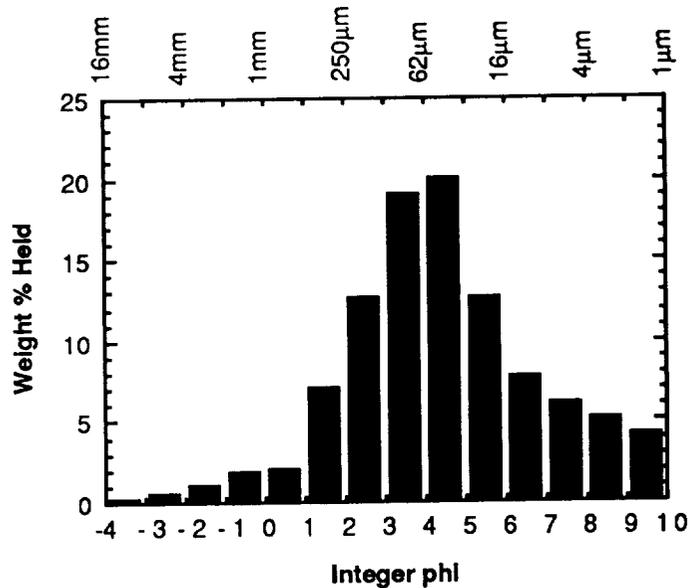
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.53
2000.00	0.99
1000.00	1.81
500.00	1.97
250.00	6.98
150.00	8.46
90.00	12.50
75.00	4.96
45.00	16.01
20.00	18.77
1.00	26.02

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	4.57
Median:	4.27
Mode:	4.50
Sorting:	2.43
Skewness:	0.18
Kurtosis:	1.18

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.86
16	2.36
25	3.01
50	4.27
75	5.87
84	7.09
95	9.10

**Soil: 15040**  
(subsample 15041,78)  
W.V. Engelhardt PI

**LOCATION COMMENTS:**

At Station 8 Astronaut Irwin dug the deep trench; samples 15040-15044 were taken from the top of the trench. The trench area is similar to the area near the ALSEP, a smooth, hummocky surface of fine grained material with rare, cobble sized fragments not visibly related to any particular crater. The trench wall was described by the astronauts as uniform, with perhaps a slight color darkening in the middle part, above a hard layer which was not penetrated, but just reached at a depth of about 35 cm. One small fresh crater occurs a few meters north of the trench, but it is too distant to add a significant layer of ejecta to the top of the trench area.

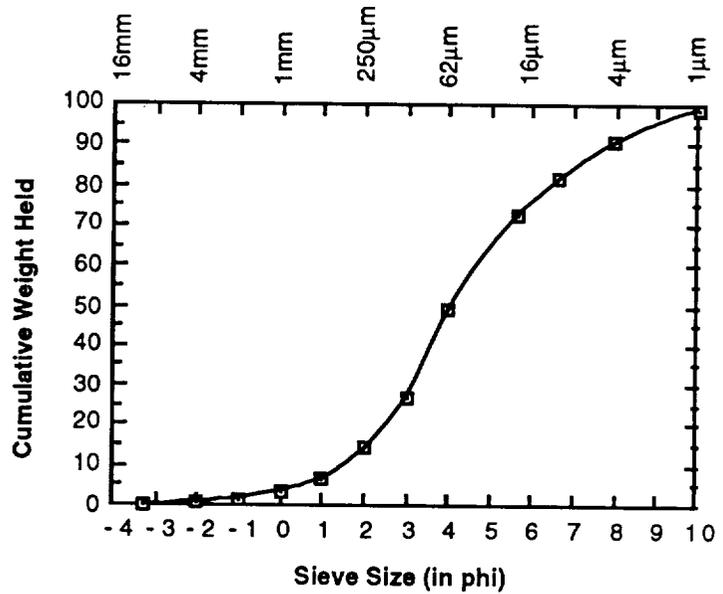
**MATURITY INDEX:**

$I_0/FeO = 94$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	0.53
2000	0.99
1000	1.81
500	3.25
250	7.56
125	12.63
63	22.39
20	23.44
10	9.09
4	8.99
1	8.32

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



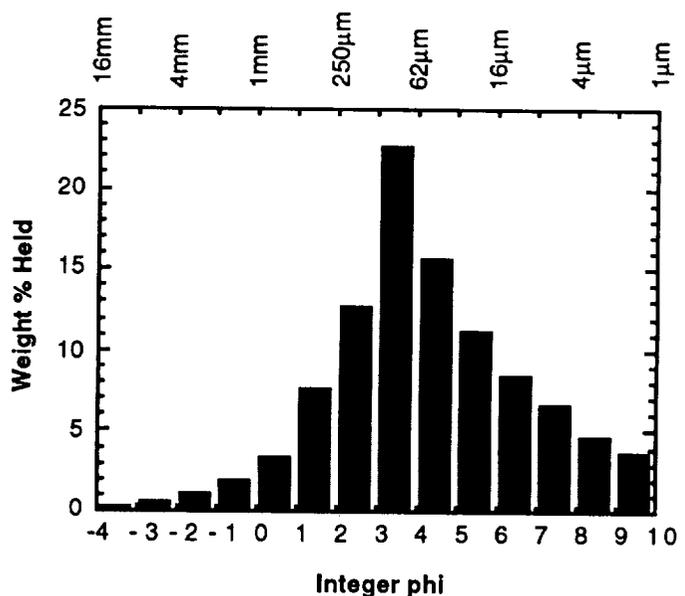
**GRAPHIC AND MOMENT MEASURES**

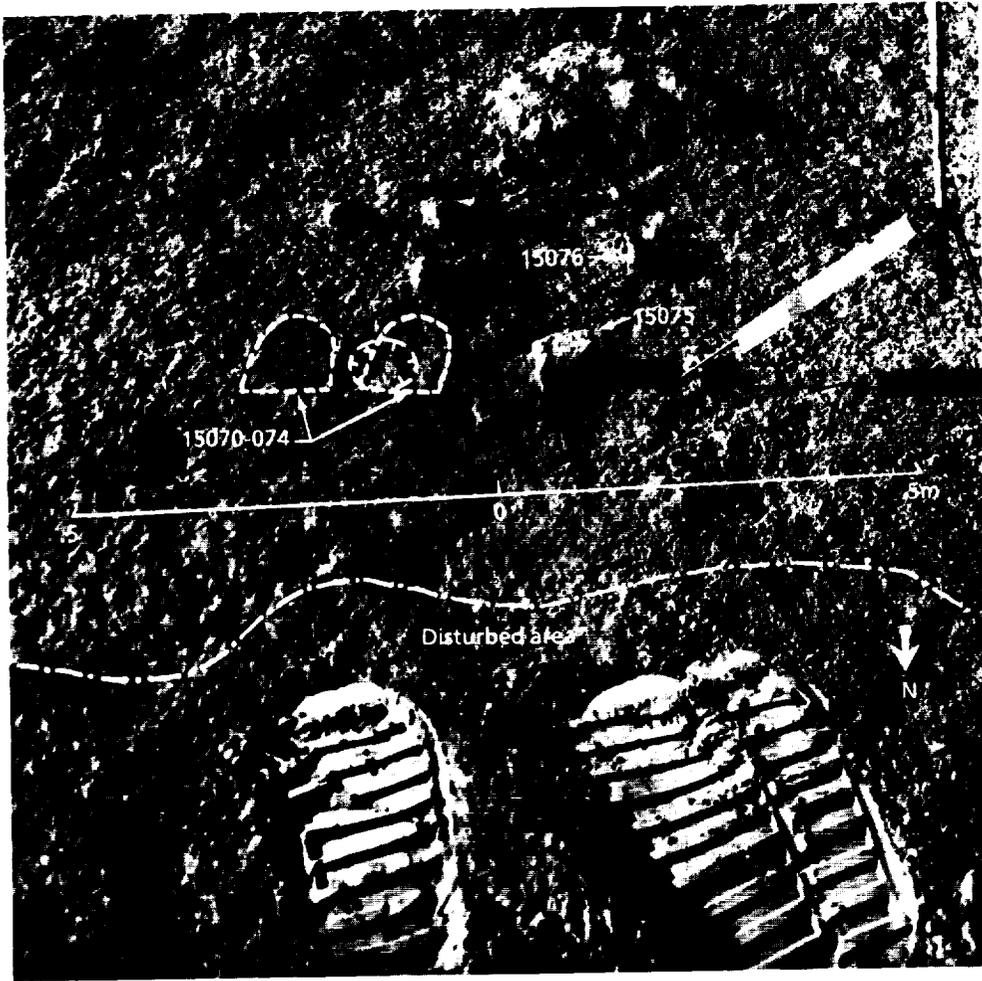
Mean:	4.39
Median:	4.04
Mode:	3.5
Sorting:	2.45
Skewness:	0.2
Kurtosis:	1.14

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.58
16	2.19
25	2.88
50	4.04
75	5.89
84	6.95
95	8.91

**SIZE DISTRIBUTION HISTOGRAM**





15070 Sample Environment

AS15-86-11534

Pre-sampling, close up.

**Soil: 15070**  
(subsample 15071,19)  
D.S. McKay PI

**LOCATION COMMENTS:**

Soil 15070, rock sample 15075, and rock sample 15076 were taken from a small area about 25 m east of the rim of Elbow crater at Station 1. The samples were taken as the middle part of a three part radial sample of the ejecta blanket of Elbow crater. The soil and two rock samples were placed in the same sample bag.

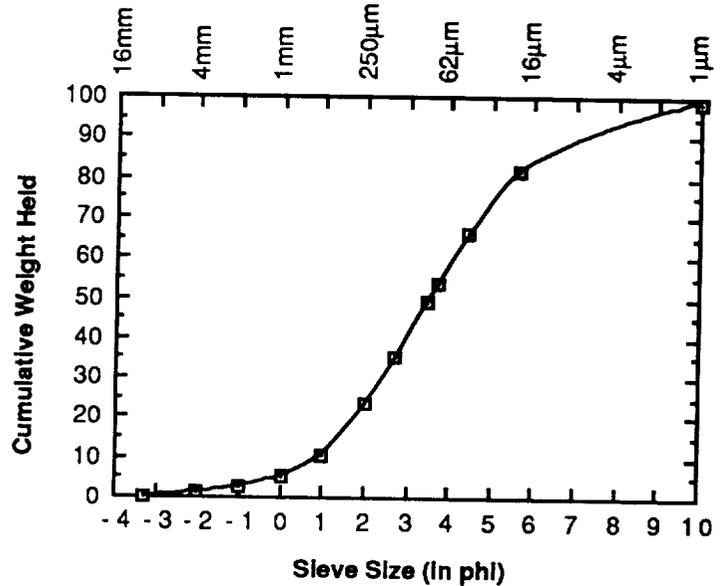
**MATURITY INDEX:**

$I_g/FeO = 52$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	1.21
2000.00	1.31
1000.00	2.79
500.00	5.39
250.00	12.70
150.00	11.87
90.00	13.89
75.00	4.52
45.00	12.14
20.00	16.03
1.00	17.16

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



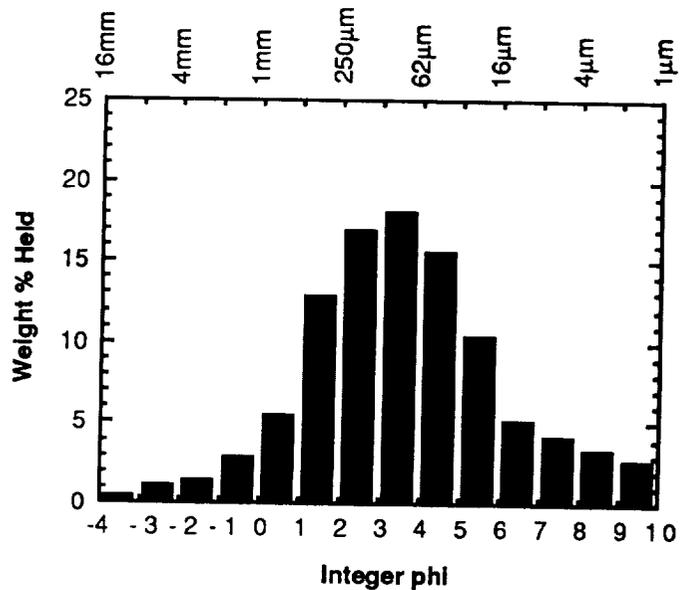
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.67
Median:	3.52
Mode:	3.50
Sorting:	2.46
Skewness:	0.14
Kurtosis:	1.21

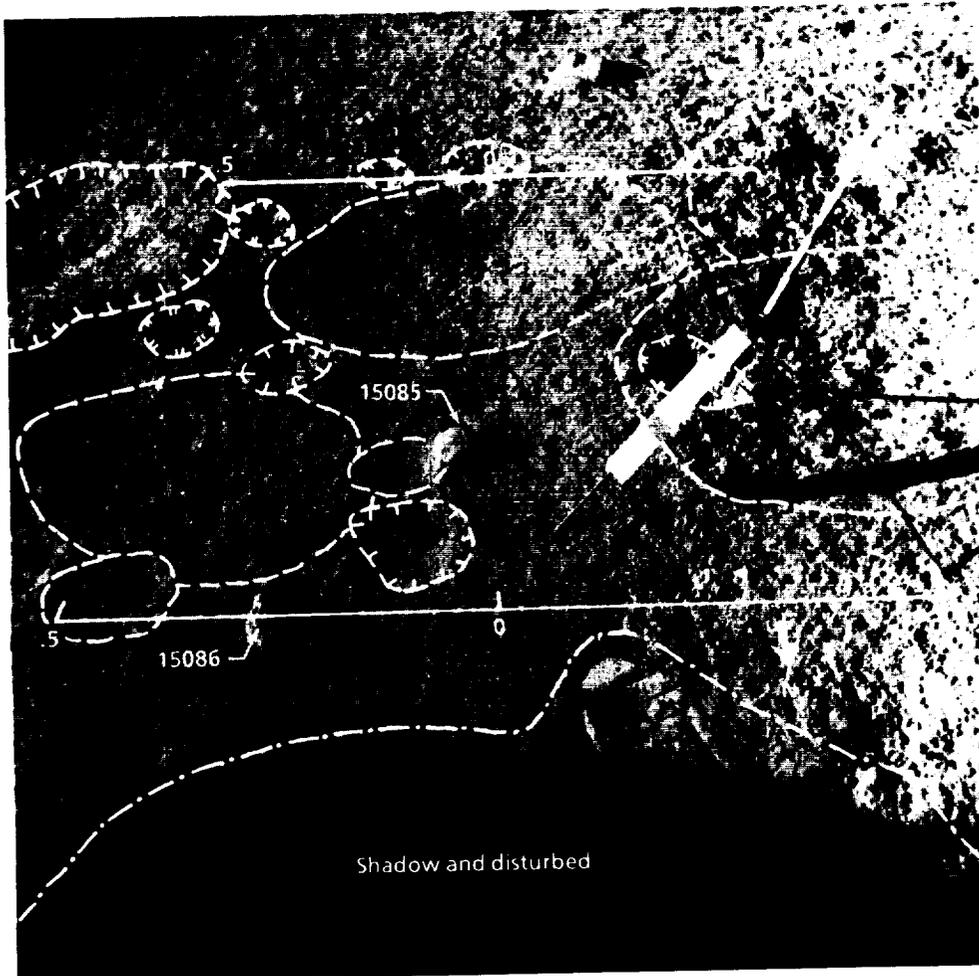
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.09
16	1.47
25	2.11
50	3.52
75	5.09
84	6.01
95	8.67

**SIZE DISTRIBUTION HISTOGRAM**



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BLACK AND WHITE PHOTOGRAPH



15086 Sample Environment

AS15-86-11536

Pre-sampling, close up.

Soil: 15086  
(subsample 15086,202)  
D.S. McKay PI

LOCATION COMMENTS:

Soil 15080 and two cobble-sized rocks, 15085 and 15086 were collected at Station 1 about 65 m east of the Elbow crater ejecta rim. This collection was the farthest from the rim of the three part radial sample of ejecta blanket. In the local area of this sample, the general ejecta blanket appears smooth with scattered cobble sized rocks. A chip from friable breccia 15086 was put through freeze-thaw cycling and ultrasonic vibration to disaggregate, then sieved.

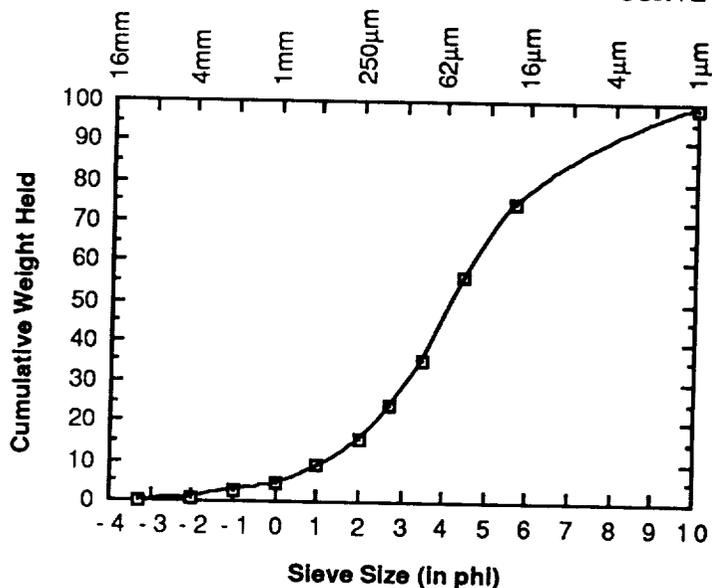
MATURITY INDEX:

$I_s/FeO = 19$  (immature)

TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.97
2000.00	1.59
1000.00	1.77
500.00	4.51
250.00	7.00
150.00	8.50
90.00	11.21
45.00	20.94
20.00	18.03
1.00	24.48

CUMULATIVE WEIGHT DISTRIBUTION CURVE



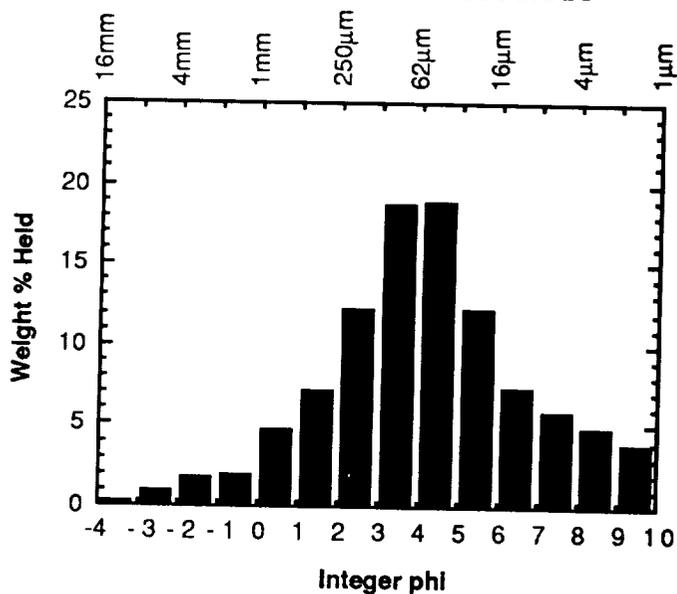
GRAPHIC AND MOMENT MEASURES

Mean:	4.37
Median:	4.15
Mode:	4.50
Sorting:	2.57
Skewness:	0.12
Kurtosis:	1.24

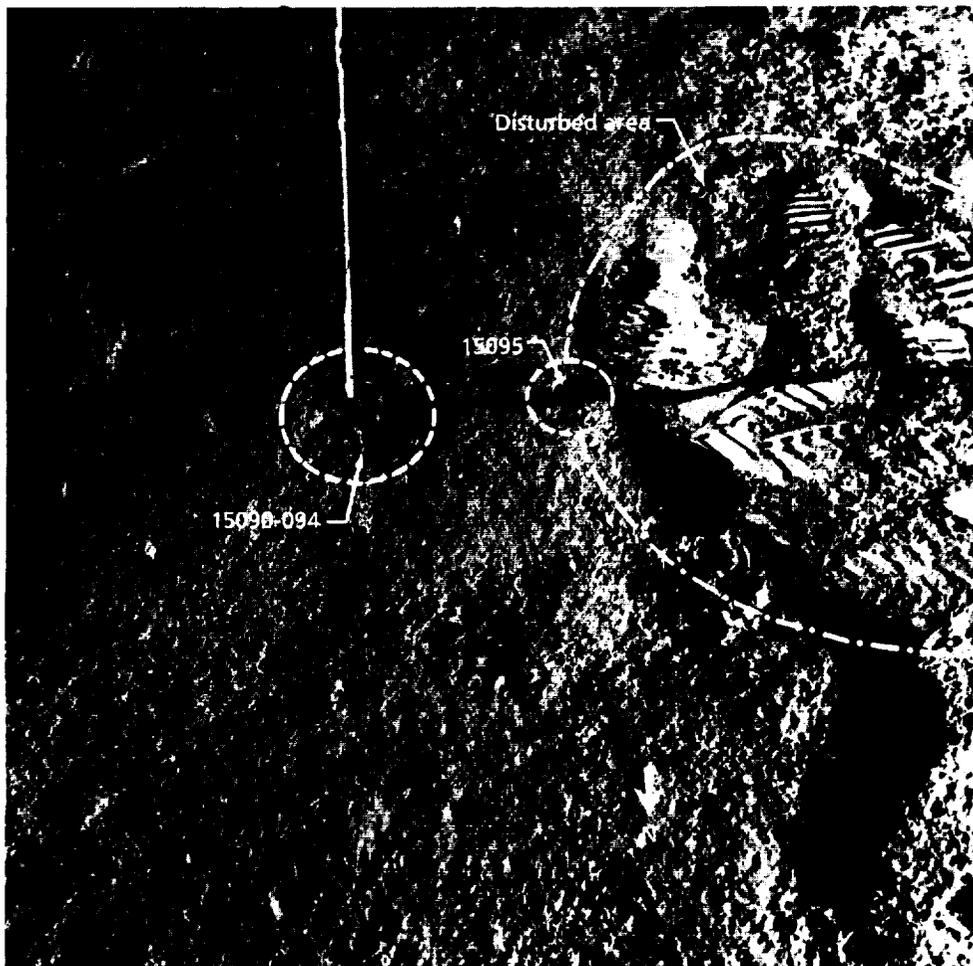
MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.21
16	2.02
25	2.79
50	4.15
75	5.70
84	6.94
95	9.04

SIZE DISTRIBUTION HISTOGRAM



ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



15090 Sample Environment

AS15-86-11549

During sampling, see  
15100 for a picture  
showing the sample  
environment.

**Soil: 15090**  
(subsample 15091,1)  
LSPET PI

**LOCATION COMMENTS:**

Samples 15090-15093 and 15095 were collected near a large boulder at Station 2. The regolith is notable for its fine texture. Coherent fragments larger than a centimeter in diameter are scattered, and none larger than 10 cm in diameter occur within the immediate sample locality. The soil can be assumed representative of the mature, well gardened regolith composed of St. George crater ejecta plus whatever exotic components have been admixed since the St. George impact.

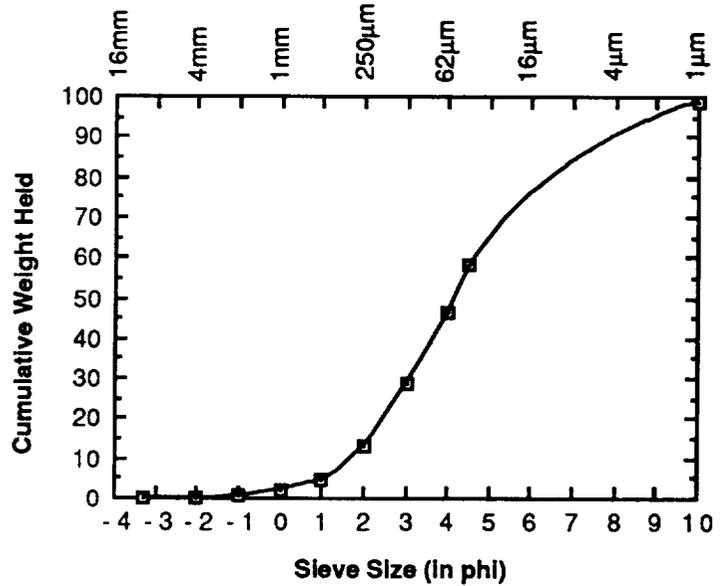
**MATURITY INDEX:**

$I_g/FeO = 74$  (mature)

**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	0.00
2000.00	0.40
1000.00	1.58
500.00	2.56
250.00	8.68
125.00	15.59
62.50	17.77
44.00	11.55
1.00	40.86

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



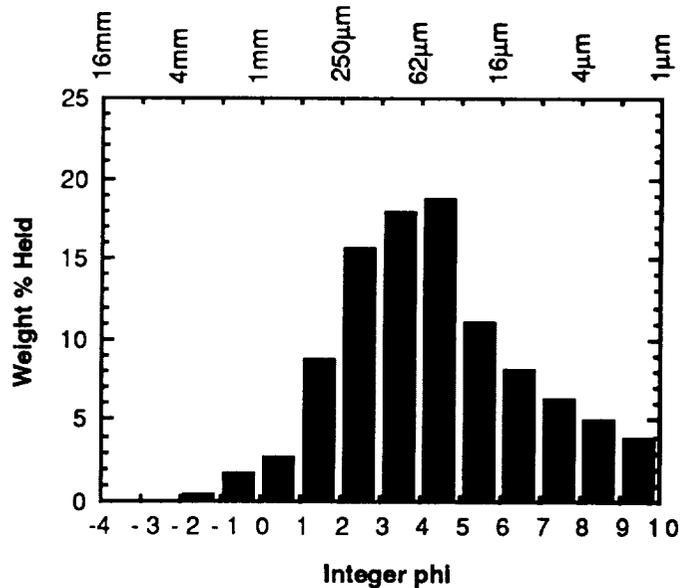
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.55
Median:	4.16
Mode:	4.50
Sorting:	2.49
Skewness:	0.24
Kurtosis:	1.00

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	1.11
16	2.21
25	2.77
50	4.16
75	6.06
84	7.30
95	9.18

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 15090**  
(subsample 15091,34)  
D.S. McKay PI

**LOCATION COMMENTS:**

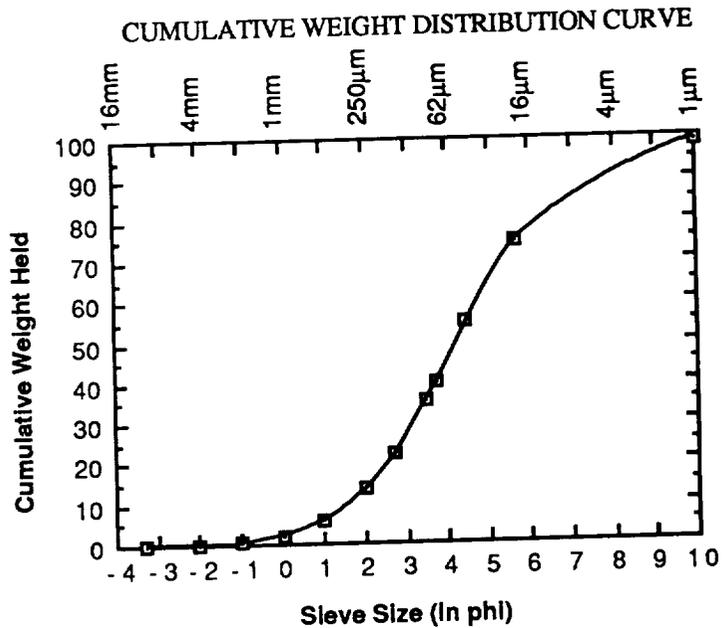
Samples 15090-15093 and 15095 were collected near a large boulder at Station 2. The regolith is notable for its fine texture. Coherent fragments larger than a centimeter in diameter are scattered, and none larger than 10 cm in diameter occur within the immediate sample locality. The soil can be assumed representative of the mature, well gardened regolith composed of St. George crater ejecta plus whatever exotic components have been admixed since the St. George impact.

**MATURITY INDEX:**

$I_s/FeO = 74$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	0.36
1000.00	1.60
500.00	4.01
250.00	7.58
150.00	8.71
90.00	12.80
75.00	4.63
45.00	15.08
20.00	19.85
1.00	24.37

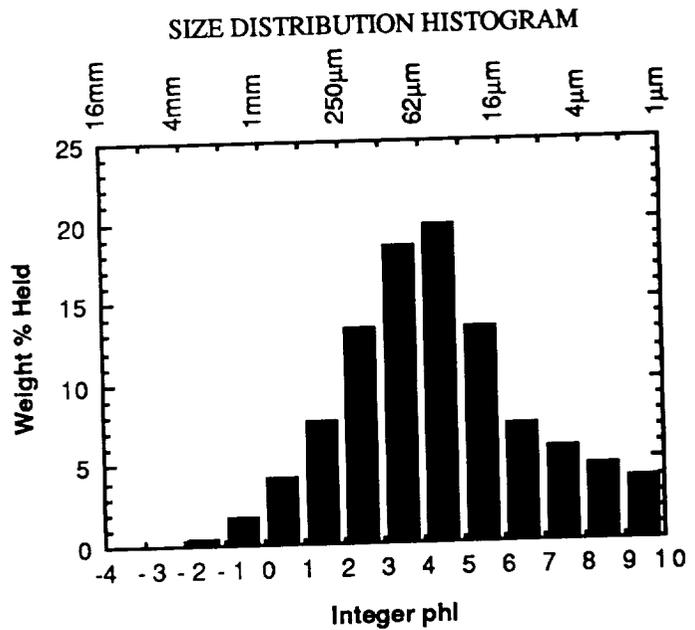


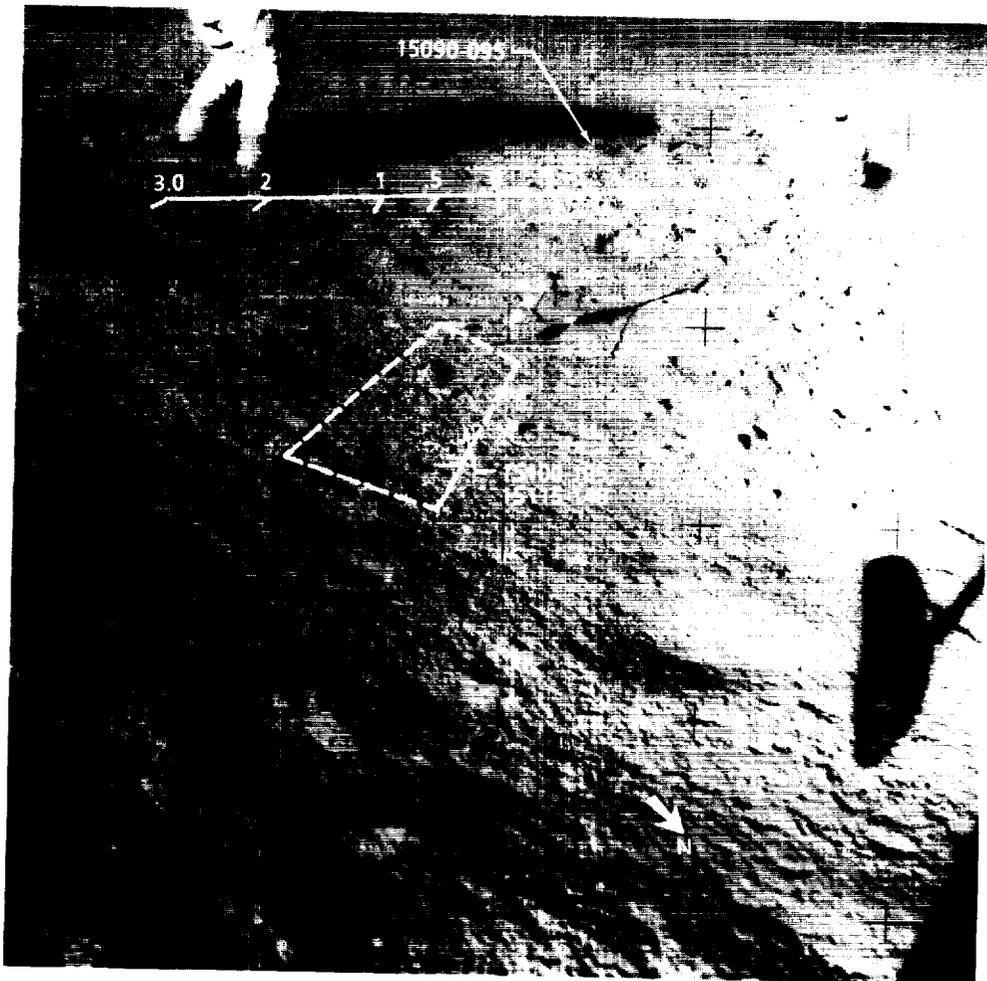
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.47
Median:	4.23
Mode:	4.50
Sorting:	2.42
Skewness:	0.16
Kurtosis:	1.21

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.80
16	2.24
25	2.90
50	4.23
75	5.68
84	6.92
95	9.04





15100 Sample Environment

AS15-85-11442

Pre-sampling, boulder in  
background on crater rim is  
the site of samples 15210,  
15220, and 15230.

**Soil: 15100**  
(subsample 15101,103)  
E.A. King PI

**LOCATION COMMENTS:**

Sample was collected at the rake sample site 5m east of the large rock at Station 2. The mature fine grained regolith with a few scattered fragments up to about 10 cm in diameter is characteristic of the entire Station 2 area and presumably represents intensely gardened St. George ejecta to which some ejecta to which some ejecta from impacts elsewhere in the Apennine Mountains and Imbrium basin have been added.

**MATURITY INDEX:**

$I_g/FeO = 70$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.23
2000.00	0.61
1000.00	1.84
841.00	1.26
420.00	5.16
250.00	6.43
177.00	5.98
150.00	3.73
125.00	4.58
105.00	5.46
74.00	8.40
53.00	6.47
44.00	5.81
37.00	4.11
30.00	9.96
20.00	8.44
10.00	8.44
1.00	12.11

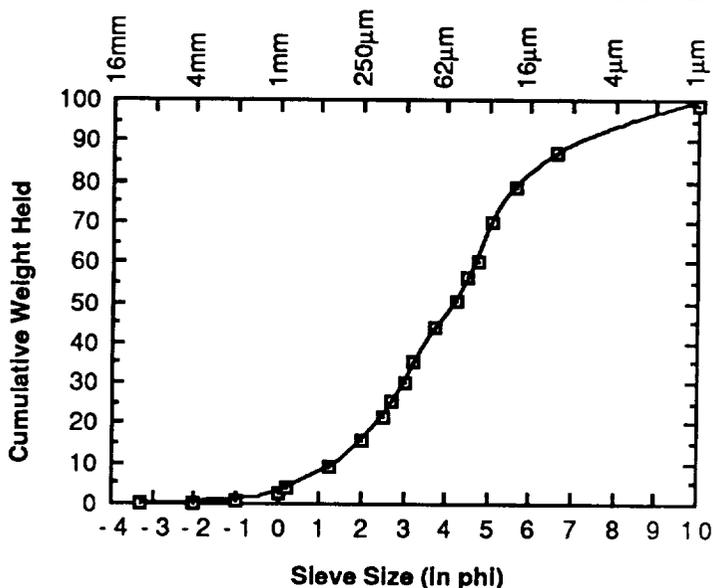
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.17
Median:	4.23
Mode:	4.50
Sorting:	2.28
Skewness:	0.02
Kurtosis:	1.27

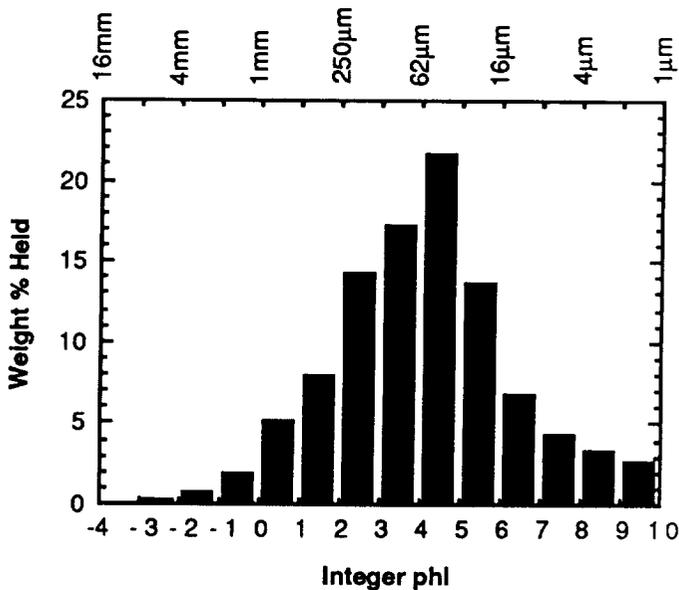
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.46
16	2.05
25	2.72
50	4.23
75	5.36
84	6.22
95	8.62

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 15100**  
(subsample 15101,105)  
D.S. McKay PI

**LOCATION COMMENTS:**

Sample was collected at the rake sample site 5m east of the large rock at Station 2. The mature fine grained regolith with a few scattered fragments up to about 10 cm in diameter is characteristic of the entire Station 2 area and presumably represents intensely gardened St. George ejecta to which some ejecta to which some ejecta from impacts elsewhere in the Apennine Mountains and Imbrium basin have been added.

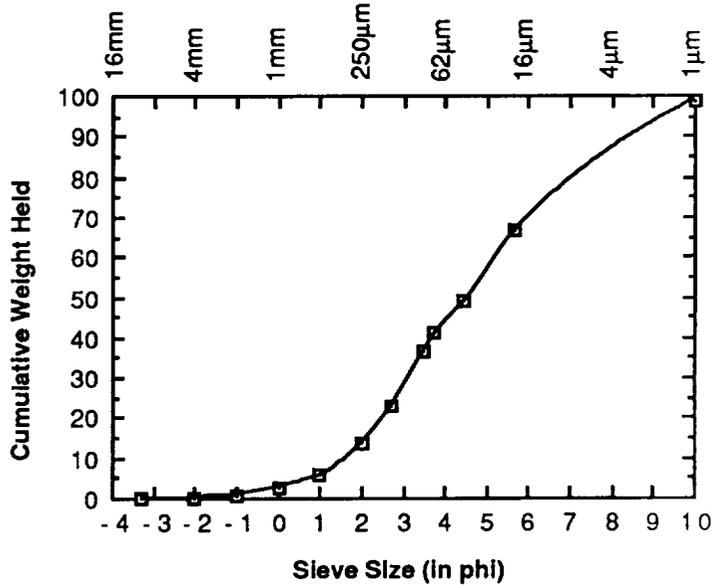
**MATURITY INDEX:**

$I_g/FeO = 70$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	0.23
2000.00	0.62
1000.00	1.84
500.00	2.99
250.00	8.07
150.00	9.38
90.00	13.23
75.00	4.70
45.00	7.92
20.00	17.68
1.00	32.34

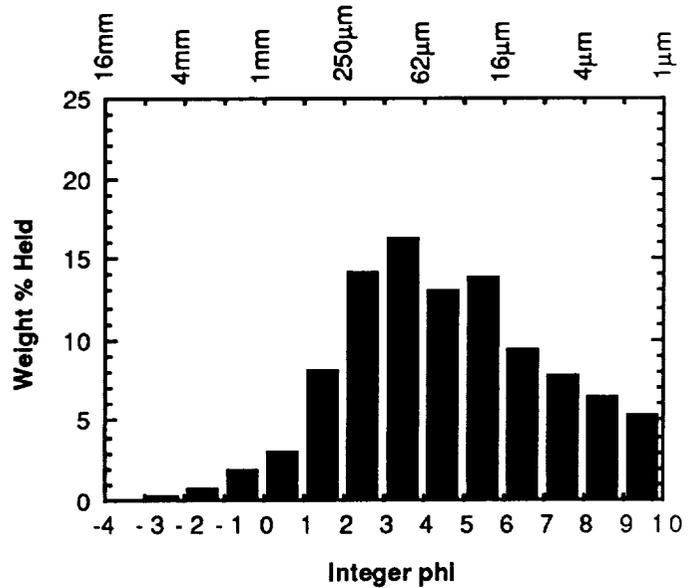
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

Mean:	4.79
Median:	4.56
Mode:	3.50
Sorting:	2.63
Skewness:	0.12
Kurtosis:	0.95

**SIZE DISTRIBUTION HISTOGRAM**



**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.81
16	2.21
25	2.84
50	4.56
75	6.49
84	7.61
95	9.28



15200 Sample Environment

AS15-86-11558

Pre-sampling.

**Soil: 15200**  
(subsample 15201,17)  
E.A. King PI

**LOCATION COMMENTS:**

Soil 15200 and fragments 15201-15206 were broken from the 1 m boulder at Station 2. The boulder appears to be an ejecta fragment from a relatively recent impact of another site. The boulder may have impacted at a low angle and rolled uphill onto the rim of its own secondary crater. Sample area is generally flat and free of fragments. Carrier notes that this is an unrepresentative collection of rock chips and loose soils found at the bottom of a sample bag.

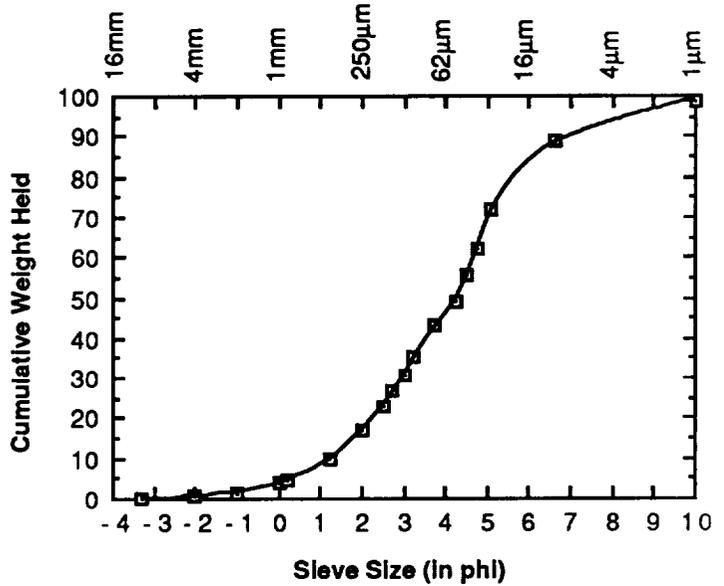
**MATURITY INDEX:**

$I_g/FeO = 68$  (mature)

**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	0.51
2000.00	1.04
1000.00	2.09
841.00	1.03
420.00	5.28
250.00	7.05
177.00	6.07
150.00	3.65
125.00	3.90
105.00	4.81
74.00	7.47
53.00	6.07
44.00	6.63
37.00	6.79
30.00	9.31
10.00	16.86
1.00	10.43

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



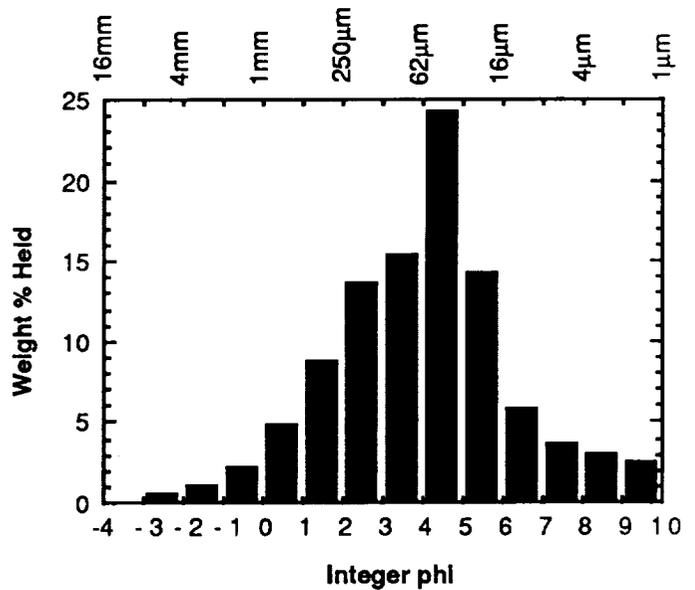
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.05
Median:	4.29
Mode:	4.50
Sorting:	2.24
Skewness:	-0.08
Kurtosis:	1.27

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	0.33
16	1.91
25	2.62
50	4.29
75	5.25
84	5.94
95	8.47

**SIZE DISTRIBUTION HISTOGRAM**





15210 Sample Environment

AS15-86-11565

Post-sampling, boulder  
located on a crater rim.

**Soil: 15210**  
(subsample 15211,32)  
D.S. McKay PI

**LOCATION COMMENTS:**

Samples 15210-15214 are soil samples collected from the rim of the secondary impact crater made by the large rock at Station 2. Samples 15210-15214 lie on the south crater rim. 15210, 15220, and 15230 are all representative of the fine grained upper part of the regolith at Station 2. Expect for the large boulder itself, the immediate sample area is underlain by sub-centimeter fines with a few scattered consolidated fragments no larger than 10 cm in diameter.

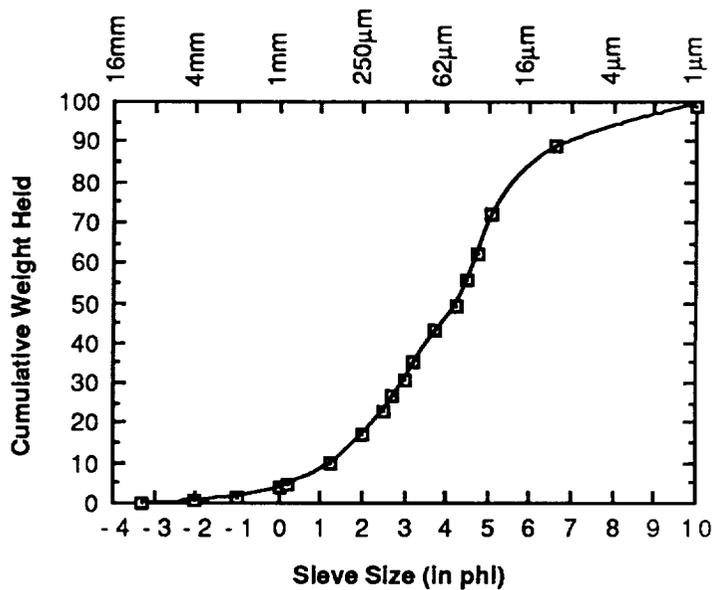
**MATURITY INDEX:**

$I_s/FeO = 60$  (submature)

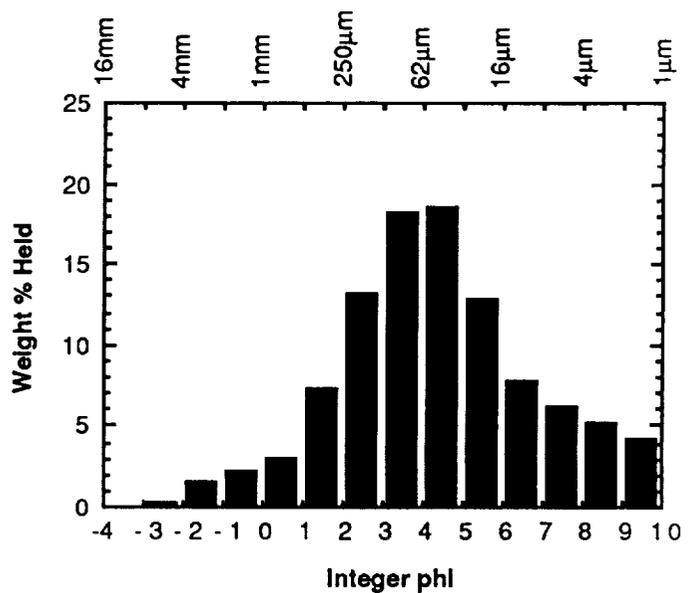
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.12
2000.00	1.40
1000.00	2.10
500.00	3.02
250.00	7.14
150.00	9.03
90.00	12.21
75.00	4.88
45.00	14.41
20.00	18.67
1.00	26.03

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	4.52
Median:	4.25
Mode:	4.50
Sorting:	2.52
Skewness:	0.15
Kurtosis:	1.18

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.51
16	2.22
25	2.89
50	4.25
75	5.87
84	7.09
95	9.10

**Soil: 15220**  
(subsample 15221,29)  
D.S. McKay PI

**LOCATION COMMENTS:**

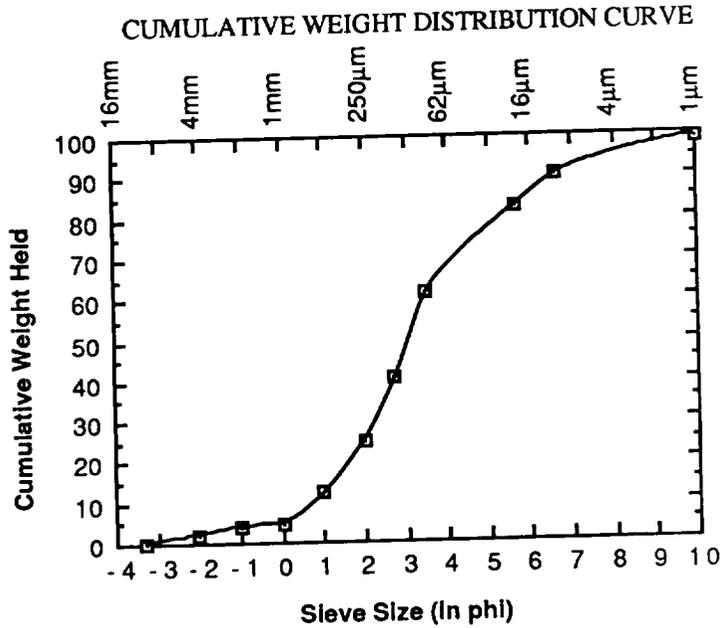
Sample 15220 was collected from the rim of the secondary impact crater made by the large rock at Station 2, about 1 meter northeast of the large rock. Samples 15210, 15220, and 15230 are all representative of the fine grained upper part of the regolith at Station 2. Except for the large boulder itself, the immediate sample area is underlain by sub-centimeter fines with a few scattered consolidated fragments no larger than 10 cm in diameter.

**MATURITY INDEX:**

$I_s/FeO = 63$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	2.16
2000.00	1.79
1000.00	0.74
500.00	7.44
250.00	12.96
150.00	15.12
90.00	21.11
20.00	21.24
10.00	7.80
1.00	8.64

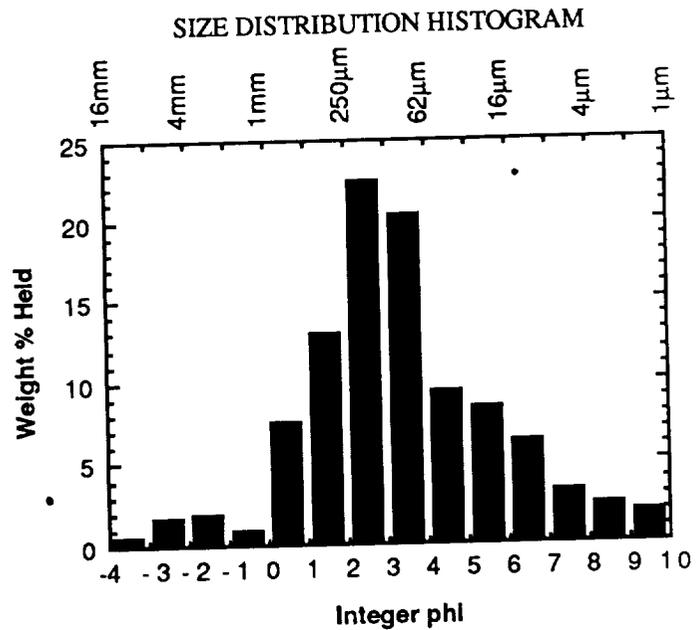


**GRAPHIC AND MOMENT MEASURES**

Mean:	3.42
Median:	3.08
Mode:	2.50
Sorting:	2.32
Skewness:	0.24
Kurtosis:	1.18

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.14
16	1.36
25	1.99
50	3.08
75	4.76
84	5.82
95	8.12





**Soil: 15220**  
(subsample 15221,57)  
E.A. King PI

**LOCATION COMMENTS:**

Sample 15220 was collected from the rim of the secondary impact crater made by the large rock at Station 2, about 1 meter northeast of the large rock. Samples 15210, 15220, and 15230 are all representative of the fine grained upper part of the regolith at Station 2. Except for the large boulder itself, the immediate sample area is underlain by sub-centimeter fines with a few scattered consolidated fragments no larger than 10 cm in diameter.

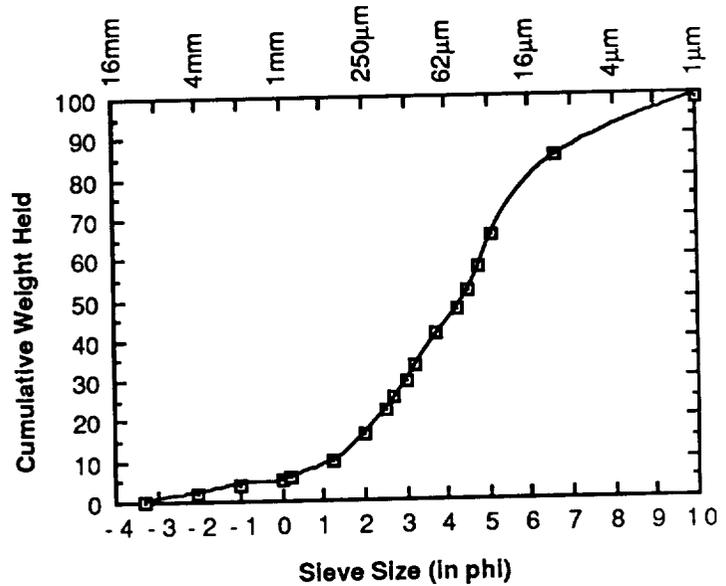
**MATURITY INDEX:**

$I_s/FeO = 63$  (mature)

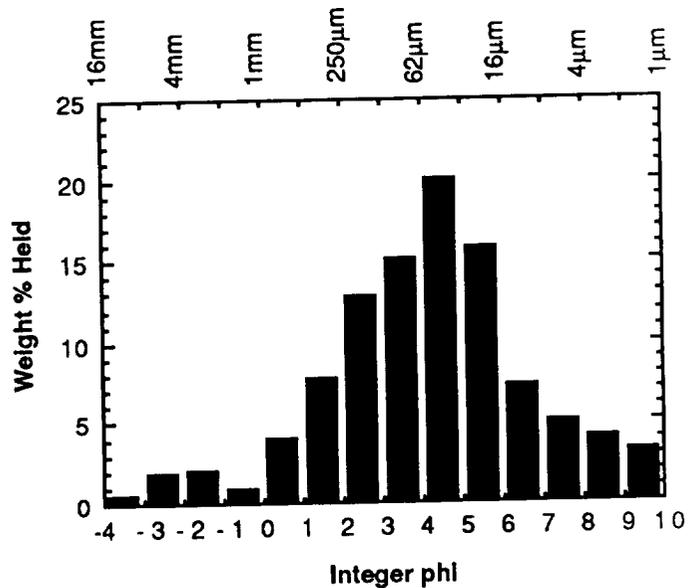
**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	2.27
2000.00	1.88
1000.00	0.78
841.00	0.96
420.00	3.93
250.00	6.60
177.00	5.91
150.00	3.05
125.00	3.86
105.00	4.38
74.00	7.53
53.00	6.11
44.00	4.65
37.00	5.33
30.00	8.36
10.00	19.43
1.00	13.97

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	4.28
Median:	4.40
Mode:	4.50
Sorting:	2.46
Skewness:	-0.04
Kurtosis:	1.25

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	0.02
16	1.96
25	2.71
50	4.40
75	5.60
84	6.48
95	8.82

**Soil: 15220**  
 (subsample 15221,58)  
 W.V. Engelhardt PI

**LOCATION COMMENTS:**

Sample 15220 was collected from the rim of the secondary impact crater made by the large rock at Station 2, about 1 meter northeast of the large rock. Samples 15201, 15220, and 15230 are all representative of the fine grained upper part of the regolith at station 2. Except for the large boulder itself, the immediate sample area is underlain by sub-centimeter fines with a few scattered consolidated fragments no larger than 10 cm in diameter.

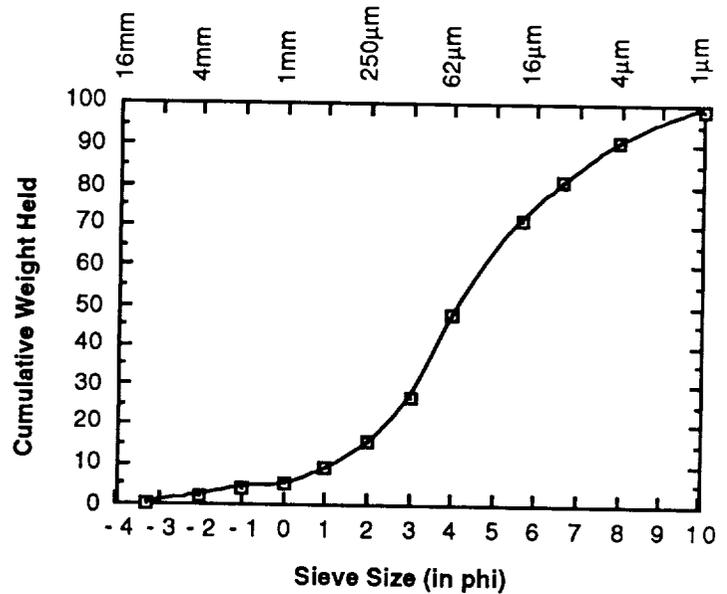
**MATURITY INDEX:**

$I_s/FeO = 63$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	2.27
2000	1.88
1000	0.78
500	3.95
250	6.68
125	11.1
63	20.79
20	23.99
10	9.31
4	9.97
1	8.28

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



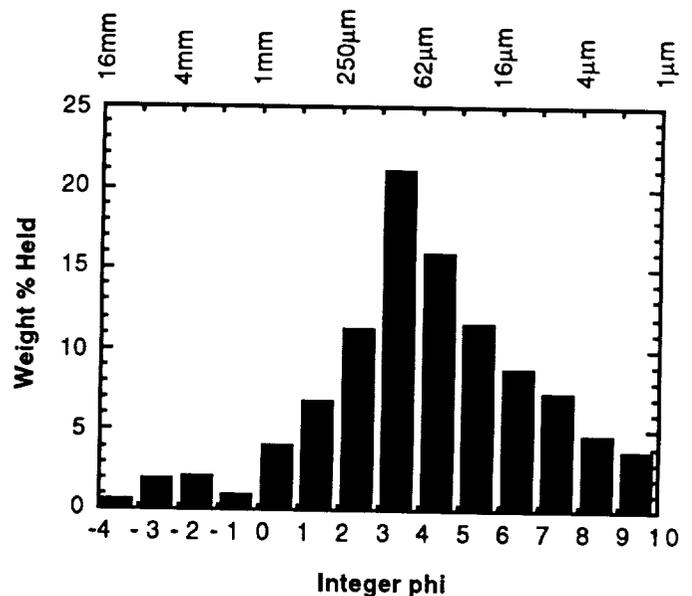
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.41
Median:	4.14
Mode:	3.5
Sorting:	2.59
Skewness:	0.12
Kurtosis:	1.16

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.05
16	2.05
25	2.87
50	4.14
75	6
84	7.04
95	8.89

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 15220**  
(subsample 15221,68)  
D.S. McKay PI

**LOCATION COMMENTS:**

Sample 15220 was collected from the rim of the secondary impact crater made by the large rock at Station 2, about 1 meter northeast of the large rock. Samples 15210, 15220, and 15230 are all representative of the fine grained upper part of the regolith at Station 2. Except for the large boulder itself, the immediate sample area is underlain by sub-centimeter fines with a few scattered consolidated fragments no larger than 10 cm in diameter.

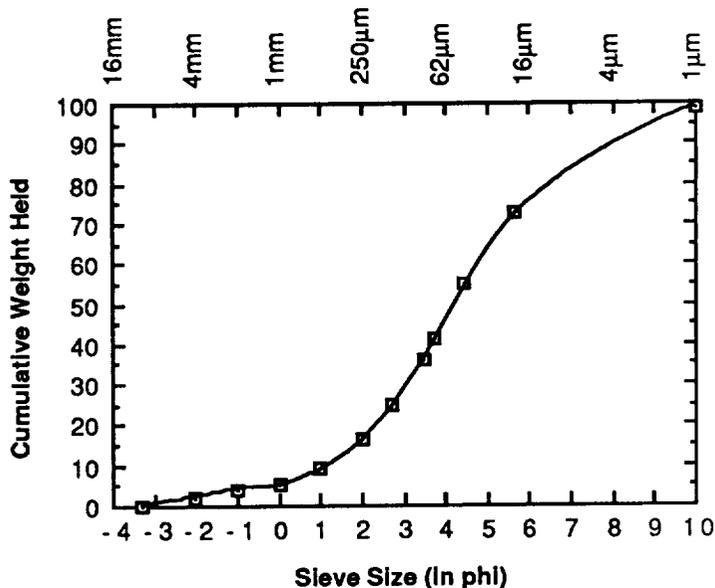
**MATURITY INDEX:**

$I_g/FeO = 63$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.27
2000.00	1.88
1000.00	0.78
500.00	3.99
250.00	7.31
150.00	8.58
90.00	11.43
75.00	4.63
45.00	13.71
20.00	17.66
1.00	26.76

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



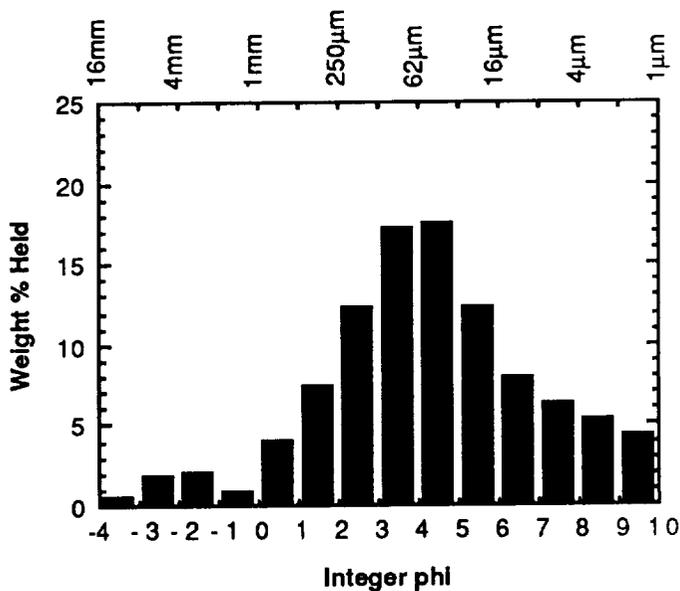
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.45
Median:	4.22
Mode:	4.50
Sorting:	2.67
Skewness:	0.11
Kurtosis:	1.16

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.06
16	1.97
25	2.75
50	4.22
75	5.95
84	7.16
95	9.12

**SIZE DISTRIBUTION HISTOGRAM**





15230 Sample Environment

AS15-86-11565

Post-sampling, boulder  
located on a crater rim.

# Soil: 15230

(subsample 15231,63)  
D.S. McKay PI

**LOCATION COMMENTS:**

Sample 15230 was collected at Station 2 from underneath the boulder which was rolled over by the crew. All soil samples collected at Station 2, 15210, 15220, and 15230 are representative of the fine grained upper part of the regolith at Station 2. Except for the large boulder itself, the immediate sample area is underlain by the sub centimeter fines with a few scattered consolidated fragments no larger than 10 cm in diameter.

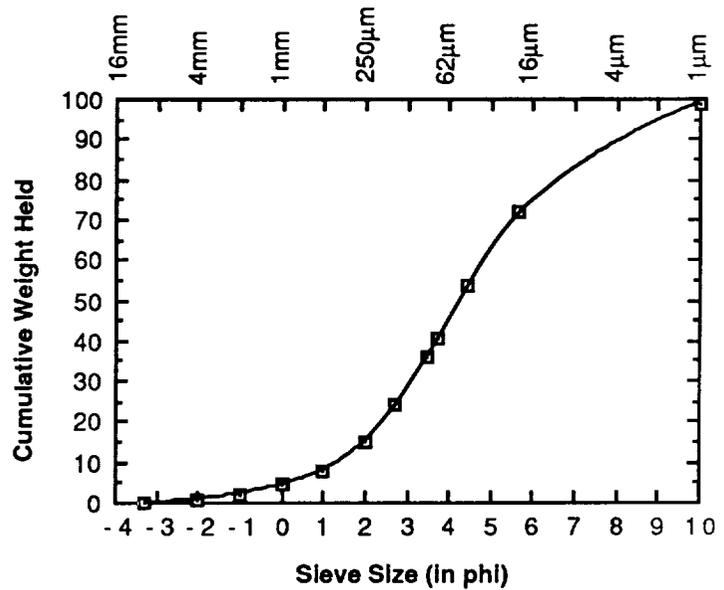
**MATURITY INDEX:**

$I_g/FeO = 71$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.73
2000.00	1.53
1000.00	2.11
500.00	3.75
250.00	7.08
150.00	8.94
90.00	11.78
75.00	4.41
45.00	13.51
20.00	17.77
1.00	27.39

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



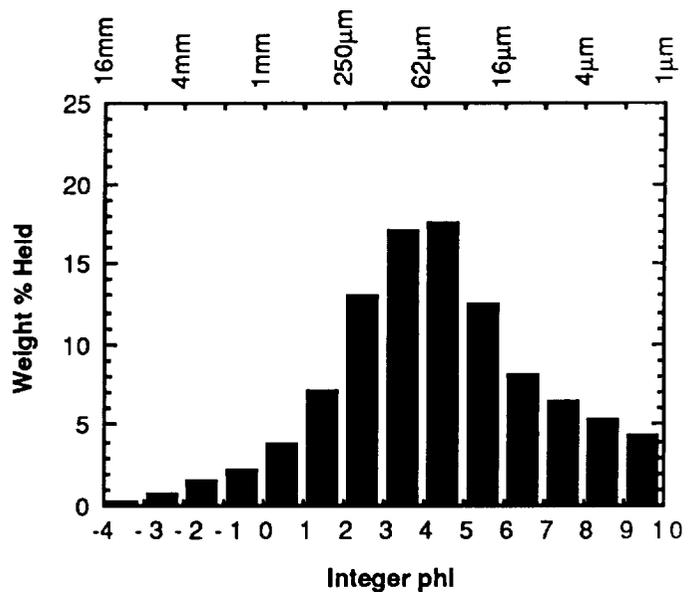
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.52
Median:	4.26
Mode:	4.50
Sorting:	2.64
Skewness:	0.12
Kurtosis:	1.14

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.22
16	2.08
25	2.80
50	4.26
75	6.01
84	7.22
95	9.14

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 15230**  
(subsample 15231,67)  
E.A. King PI

**LOCATION COMMENTS:**

Sample 15230 was collected at Station 2 from underneath the boulder which was rolled over by the crew. All soil samples collected at Station 2, 15210, 15220, and 15230 are representative of the fine grained upper part of the regolith at Station 2. Except for the large boulder itself, the immediate sample area is underlain by the sub centimeter fines with a few scattered consolidated fragments no larger than 10 cm in diameter.

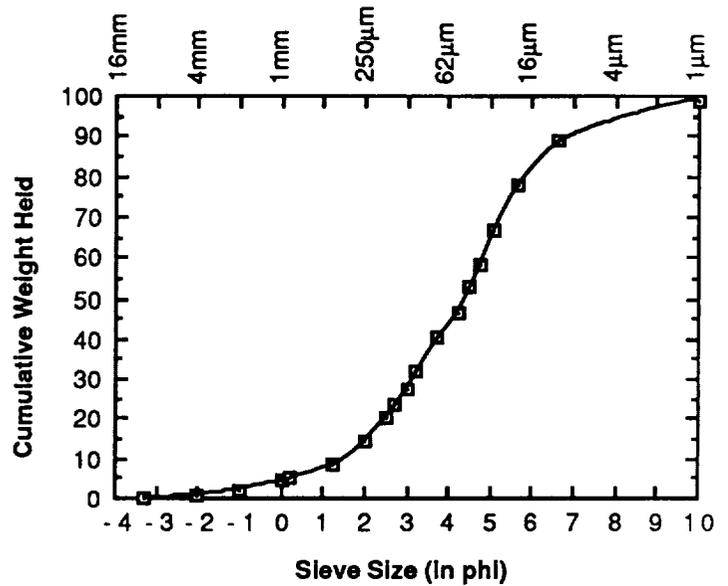
**MATURITY INDEX:**

$I_g/FeO = 71$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	0.72
2000.00	1.54
1000.00	2.10
841.00	0.64
420.00	3.55
250.00	5.75
177.00	5.81
150.00	3.20
125.00	3.94
105.00	5.00
74.00	8.20
53.00	6.23
44.00	6.02
37.00	5.51
30.00	8.35
20.00	11.10
10.00	11.11
1.00	10.22

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



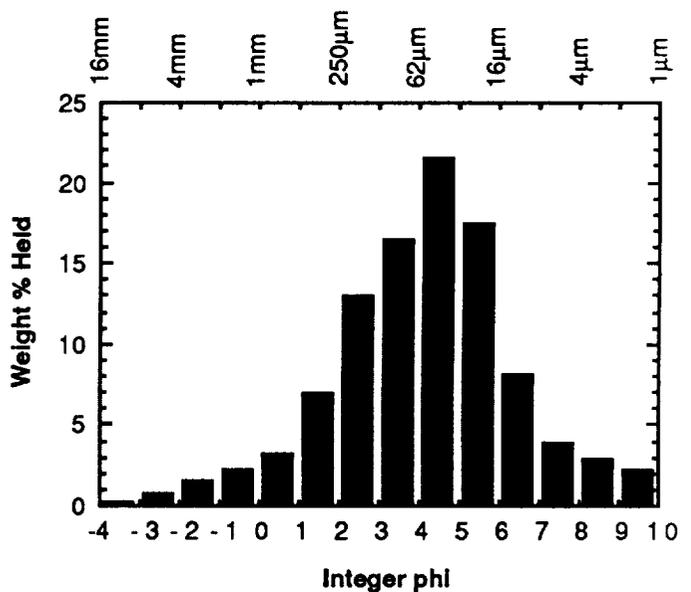
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.22
Median:	4.39
Mode:	4.50
Sorting:	2.22
Skewness:	-0.07
Kurtosis:	1.27

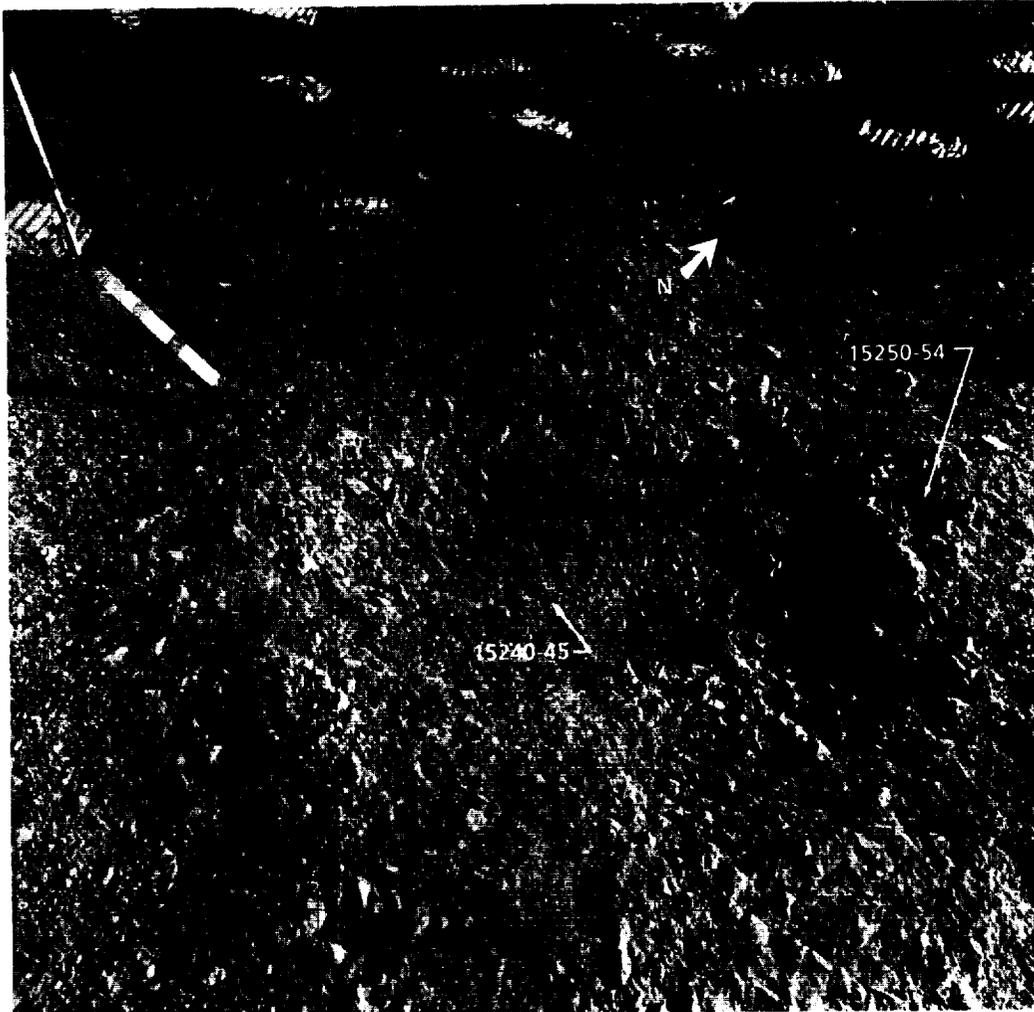
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.25
16	2.16
25	2.85
50	4.39
75	5.47
84	6.12
95	8.38

**SIZE DISTRIBUTION HISTOGRAM**



ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



15240 Sample Environment

AS15-86-11610

Pre-sampling, note sharp  
raised rim of 1 m crater.

**Soil: 15240**  
(subsample 15241,1)  
LSPET PI

**LOCATION COMMENTS:**

Samples 15240-15245 and 15250-15255 were collected from the floor and rim respectively of a 1m crater 20m upslope of the LRV at Station 6. The crew described the crater as a "fresh little crater" and noted a concentration of clods up to 10 cm on an otherwise smooth, fine grained surface. Approximately half of the sample collected here are pieces of glassy breccia >1cm not included as part of the soil (15245). There are only a few fragments >1cm in the area surrounding the crater, and all other craters in the area are subdued. The general slope of the area dips 10 degrees to the north.

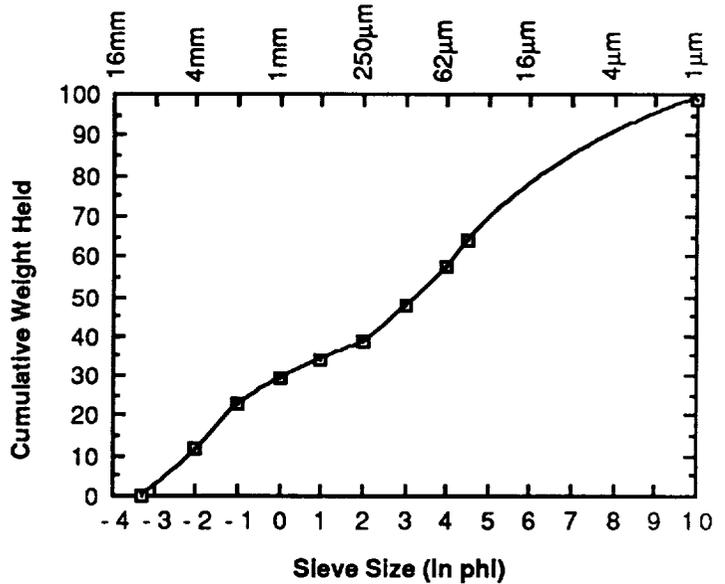
**MATURITY INDEX:**

$I_s/FeO = 45$  (submature)

**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	11.48
2000.00	11.29
1000.00	6.43
500.00	5.05
250.00	4.16
125.00	9.01
62.50	9.80
44.00	6.93
1.00	34.85

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



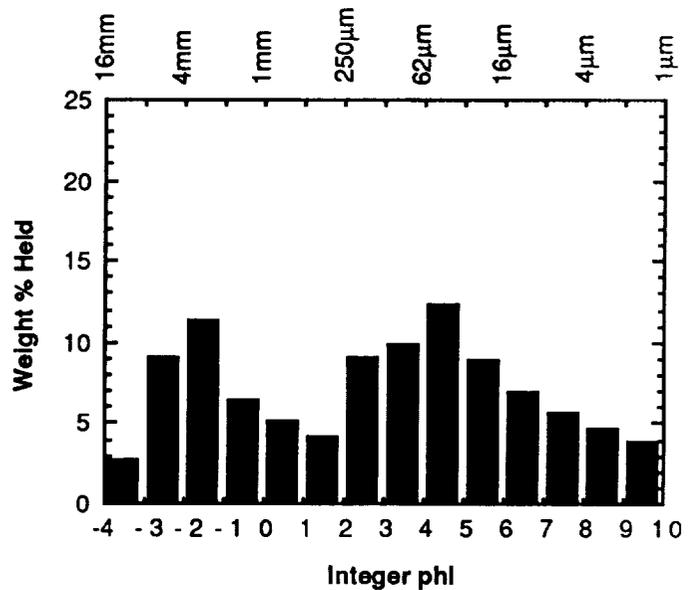
**GRAPHIC AND MOMENT MEASURES**

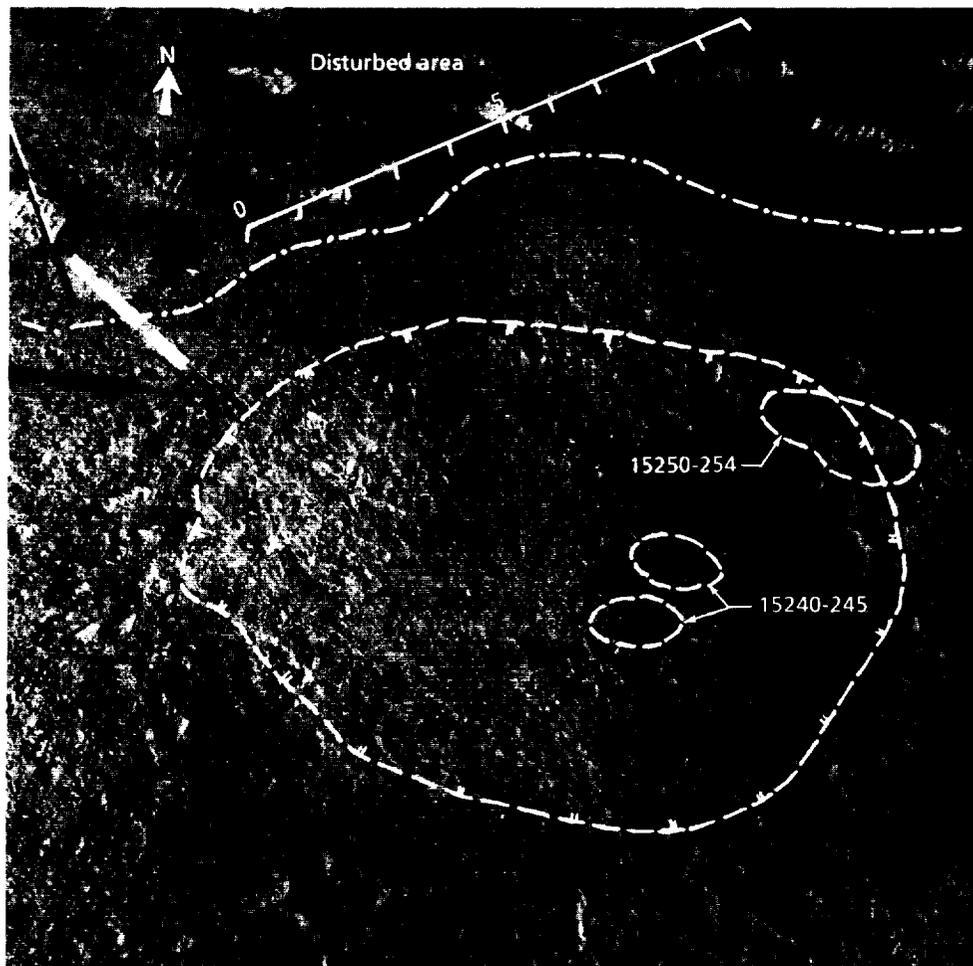
Mean:	2.90
Median:	3.27
Mode:	4.50
Sorting:	3.94
Skewness:	-0.07
Kurtosis:	0.76

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-2.71
16	-1.59
25	-0.69
50	3.27
75	5.68
84	7.02
95	9.09

**SIZE DISTRIBUTION HISTOGRAM**





15250 Sample Environment

AS15-86-11610

Pre-sampling, note sharp raised rim of 1 m crater.

Soil: 15250  
(subsample 15251,29)  
D.S. McKay PI

LOCATION COMMENTS:

Sample collected from the east rim of a 1m crater approximately 20 m southeast and upslope from the LRV at Station 6. The crater is marked by a concentration of fragments, primarily clods up to 10 cm in diameter, on an otherwise smooth, finely granular surface. It was described by the crew as a "fresh little crater" and it is superposed on the south wall of a subdued 3 m crater which has no visible ejecta material around it. Sample 15240 is collected from the floor of the same 1m crater.

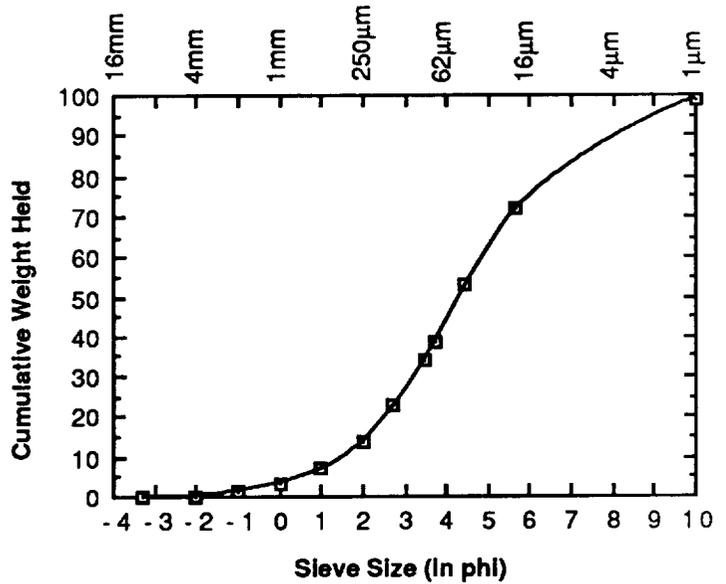
MATURITY INDEX:

$I_s/FeO = 75$  (mature)

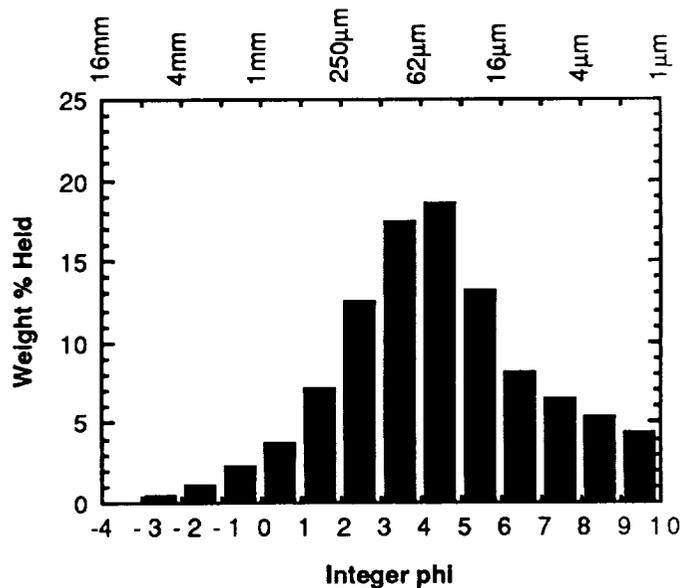
TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.30
2000.00	1.00
1000.00	2.08
500.00	3.57
250.00	6.98
150.00	8.66
90.00	11.55
75.00	4.64
45.00	14.20
20.00	18.87
1.00	27.15

CUMULATIVE WEIGHT DISTRIBUTION CURVE



SIZE DISTRIBUTION HISTOGRAM



GRAPHIC AND MOMENT MEASURES

Mean:	4.57
Median:	4.31
Mode:	4.50
Sorting:	2.55
Skewness:	0.14
Kurtosis:	1.15

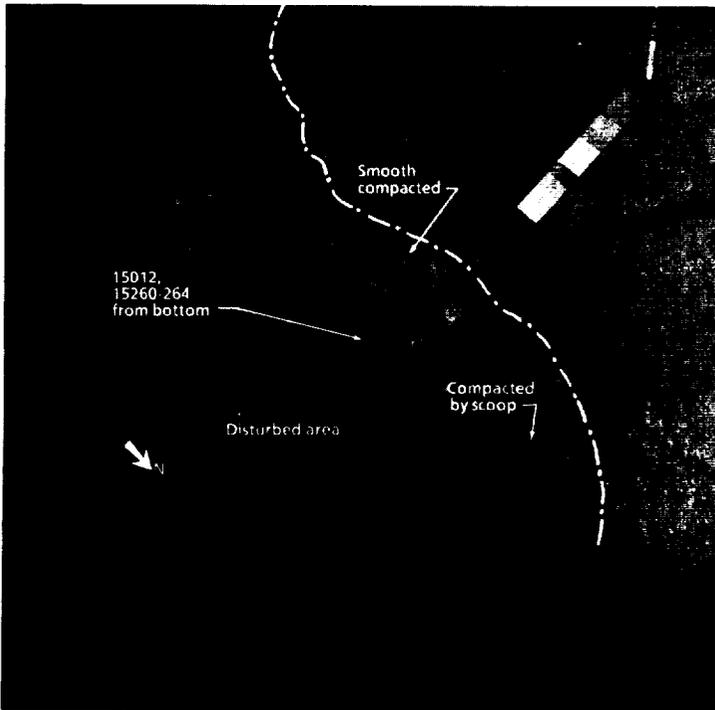
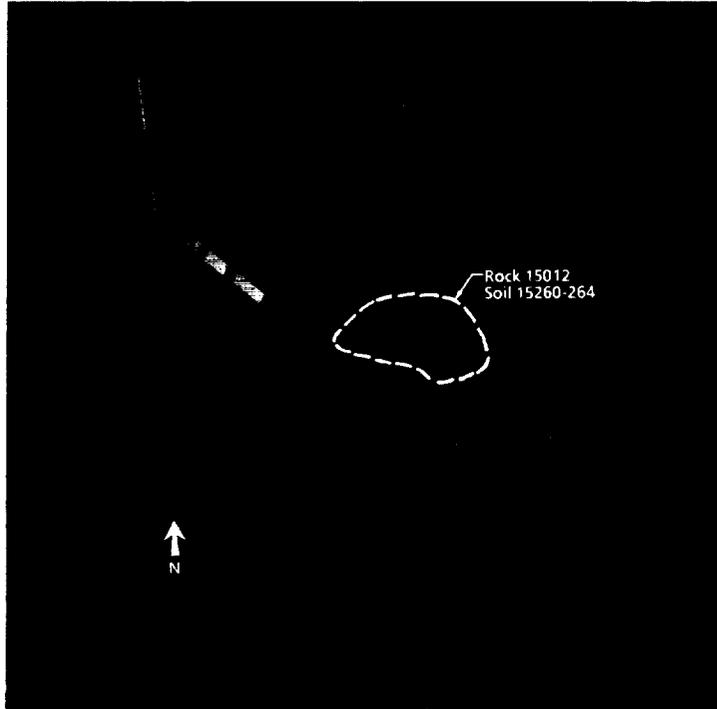
MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.52
16	2.21
25	2.91
50	4.31
75	5.98
84	7.19
95	9.13

15260 Sample Environment

AS15-86-11641

Pre-sampling.



15260 Sample Environment

AS15-86-11643

Post-sampling.

**Soil: 15260**  
(subsample 15261,1)  
W.D. Carrier PI

**LOCATION COMMENTS:**

Rock sample 15012 and soil 15260 were collected from the bottom of a trench dug into the south rim of a 12 meter diameter crater 10 - 15 meters downslope from the LRV at Station 6. Sample 15012 was also collected at the bottom of this trench and placed in a Special Environmental Sample Container. The surface where the trench was dug is littered with fragments ranging from .5 - 2 cm in size, but distinctly fewer than on the north rim of the same crater. This may have prompted the astronaut's remarks that the south rim was softer and the north rim more granular.

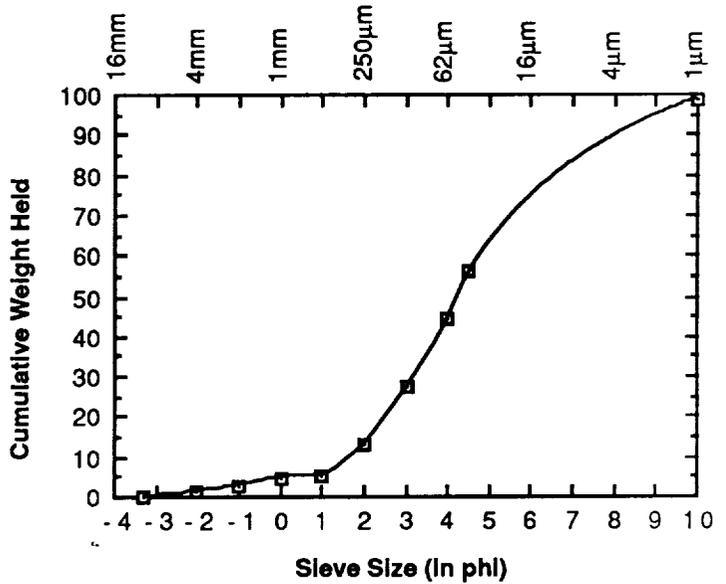
**MATURITY INDEX:**

$I_s/FeO = 77$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	1.29
2000.00	1.58
1000.00	1.98
500.00	0.50
250.00	8.02
125.00	13.76
62.50	17.23
44.00	11.98
1.00	42.67

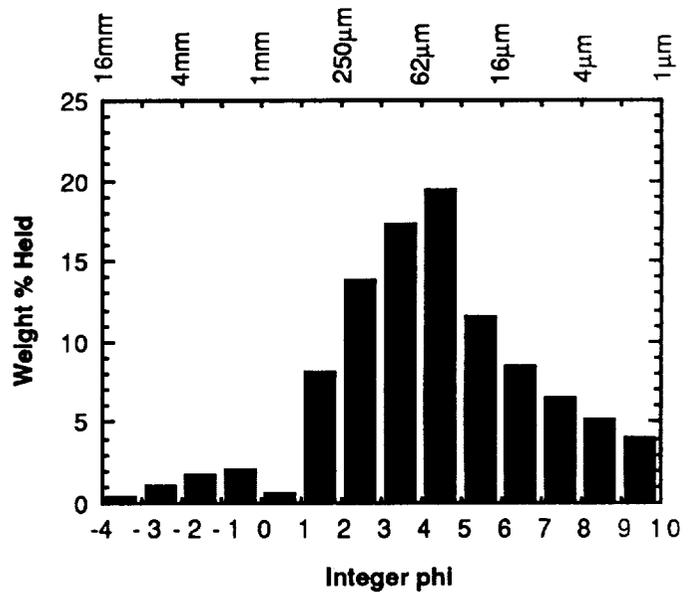
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

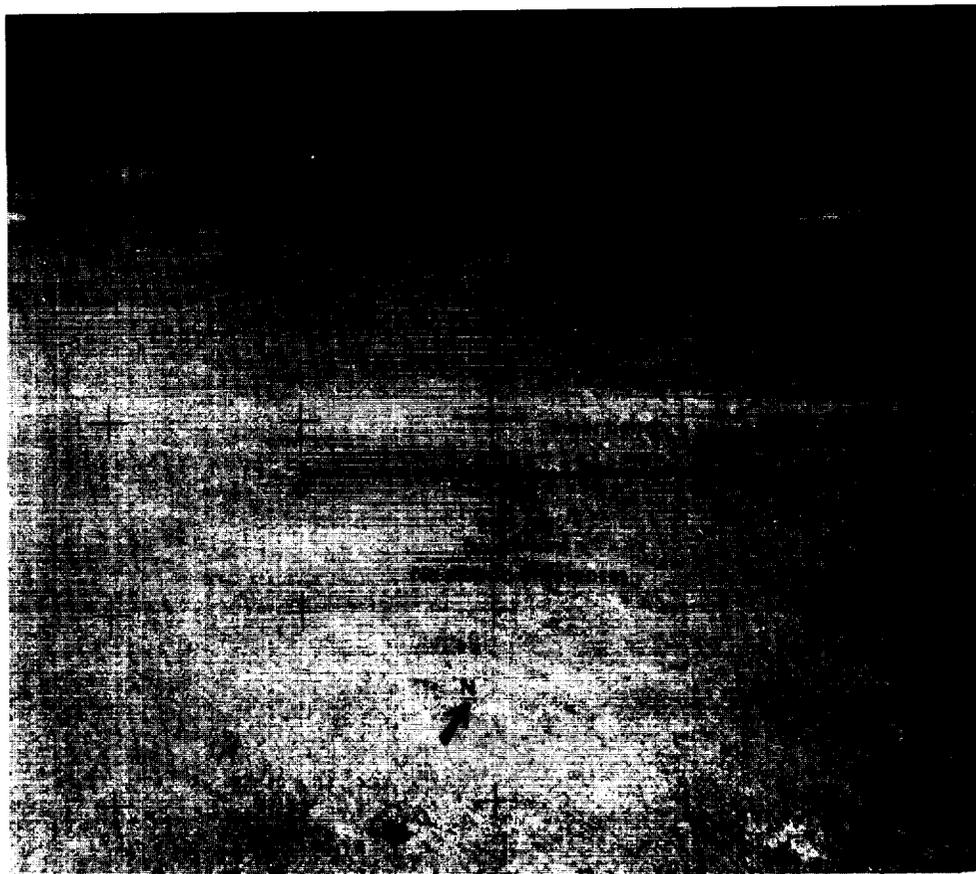
Mean:	4.62
Median:	4.24
Mode:	4.50
Sorting:	2.64
Skewness:	0.17
Kurtosis:	1.10

**SIZE DISTRIBUTION HISTOGRAM**



**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.27
16	2.23
25	2.86
50	4.24
75	6.19
84	7.39
95	9.21



15265 Sample Environment

AS15-85-11485

Pre-sampling.

**Soil: 15265**  
 (subsample 15265,71)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Basalt fragment collected from the rim of a 12m, subdued crater at Station 6, the furthest point east sampled on the Appennine front during this mission. This basalt fragment is probably exotic. Fragment was disaggregated with 4480 cycles of freeze/thaw and sonic disaggregation.

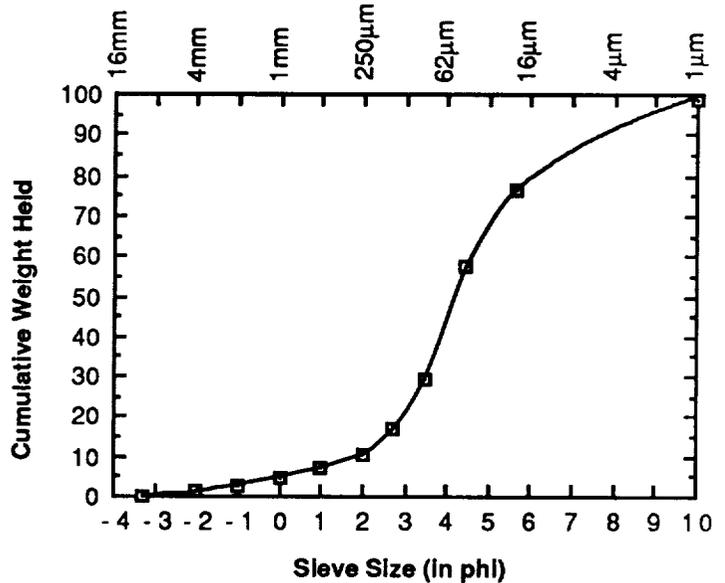
**MATURITY INDEX:**

$I_g/FeO = 23$  (immature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	1.02
2000.00	1.51
1000.00	2.04
500.00	2.38
250.00	3.46
150.00	6.49
90.00	12.20
45.00	28.26
20.00	19.20
1.00	22.44

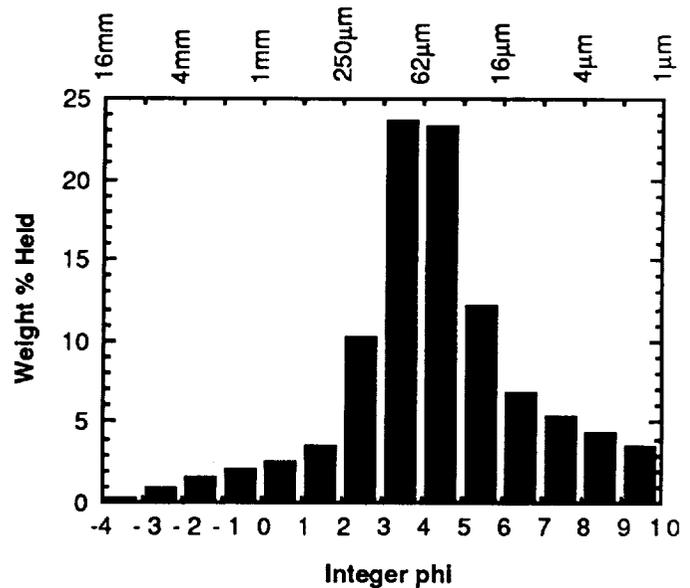
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

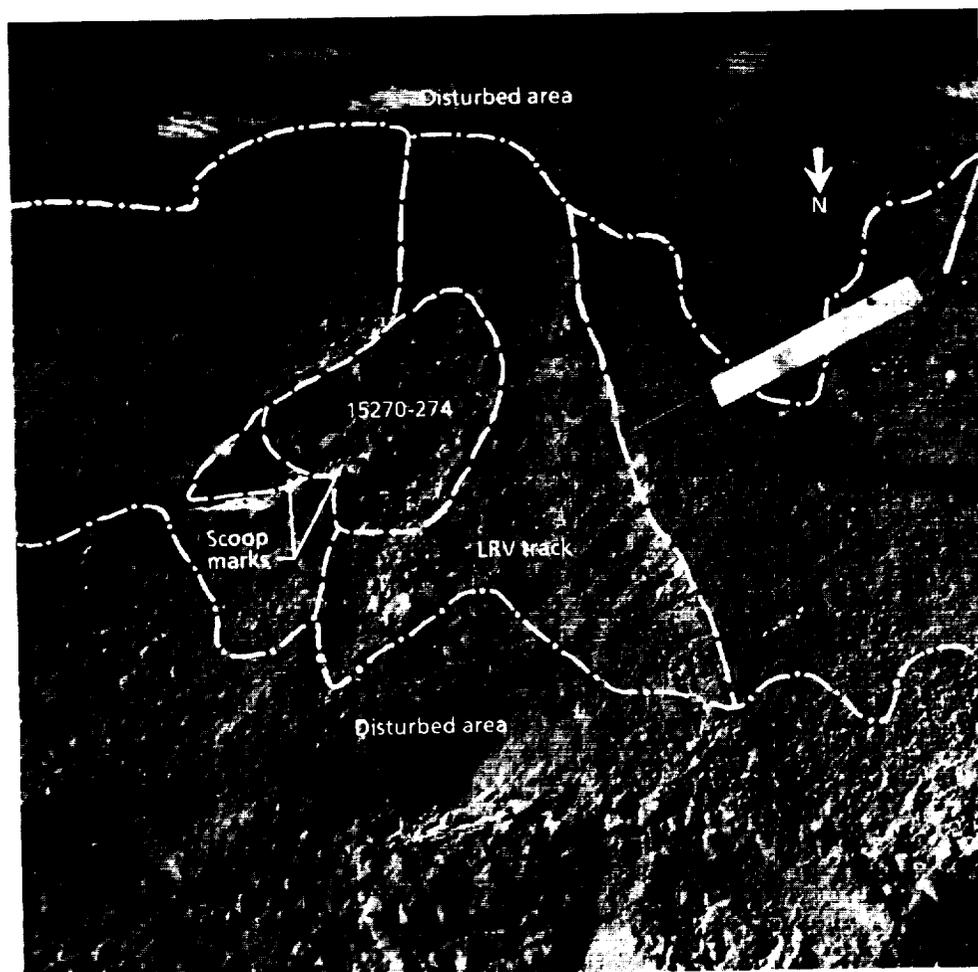
Mean:	4.51
Median:	4.17
Mode:	3.50
Sorting:	2.35
Skewness:	0.17
Kurtosis:	1.61

**SIZE DISTRIBUTION HISTOGRAM**



**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.19
16	2.65
25	3.25
50	4.17
75	5.49
84	6.72
95	8.96



15270 Sample Environment

AS15-86-11657

Post-sampling, soil  
collected after LRV track  
was made.

**Soil: 15270**  
(subsample 15271,111)  
W.V. Engelhardt PI

**LOCATION COMMENTS:**

Sample was a large soil sample collected from the compressed wheel track behind the LRV which was parked on a slope of 10-15 degrees toward the north. The adjacent undisturbed soil surface appears to be typical of the coarsely granular texture at Station 6. The immediate vicinity is 5-7% covered by centimeter size clods, and is lacking in fresh craters or coherent looking rock fragments.

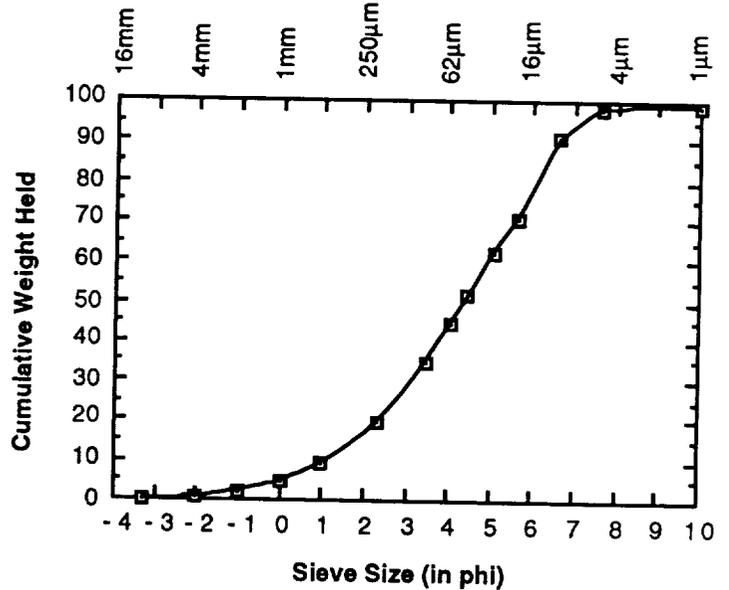
**MATURITY INDEX:**

$I_s/FeO = 63$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	0.52
2000	1.62
1000	2.45
500	4.81
200	10.28
90	15.19
60	9.9
45	6.6
30	10.94
20	8.58
10	19.9
5	7.07
1	1.13

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



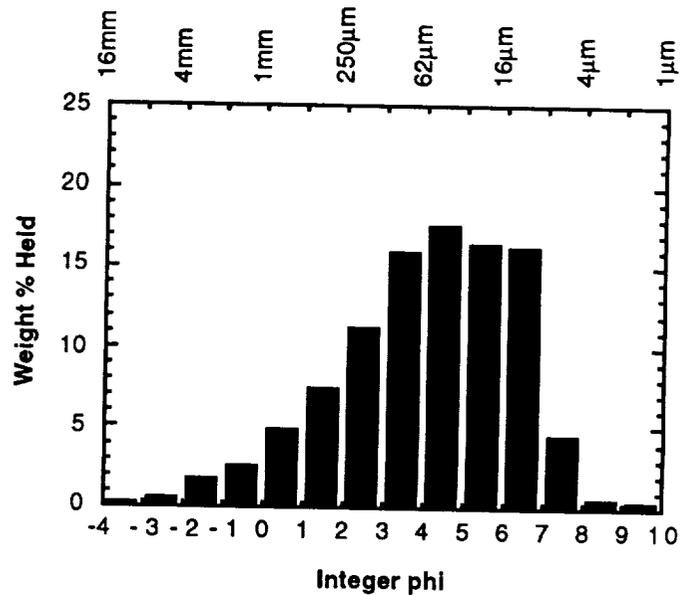
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.19
Median:	4.39
Mode:	4.5
Sorting:	2.15
Skewness:	-0.18
Kurtosis:	0.93

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.12
16	1.91
25	2.79
50	4.39
75	5.88
84	6.26
95	7.14

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 15270**  
 (subsample 15271,115)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Sample was a large soil sample collected from the compressed wheel track behind the LRV which was parked on a slope of 10-15 degrees toward the north. The adjacent undisturbed soil surface appears to be typical of the coarsely granular texture at Station 6. The immediate vicinity is 5-7% covered by centimeter size clods, and is lacking in fresh craters or coherent looking rock fragments.

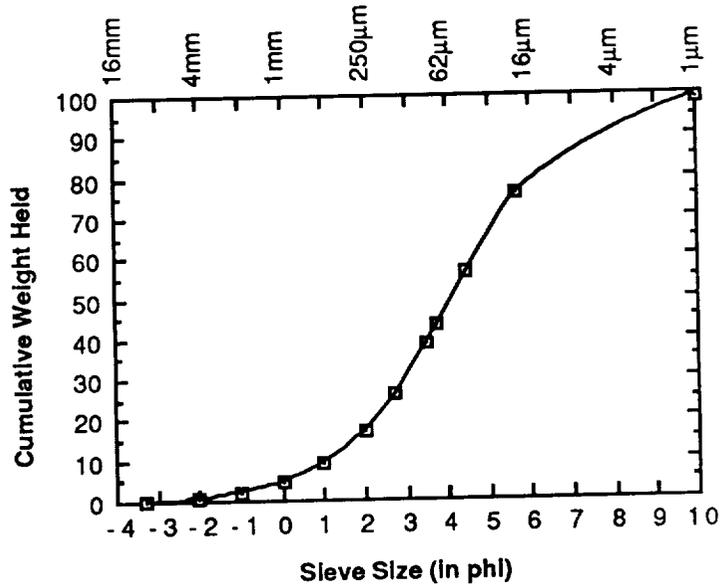
**MATURITY INDEX:**

$I_g/FeO = 63$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	0.52
2000.00	1.62
1000.00	2.45
500.00	4.85
250.00	7.80
150.00	8.96
90.00	12.46
75.00	4.42
45.00	13.35
20.00	19.46
1.00	23.12

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



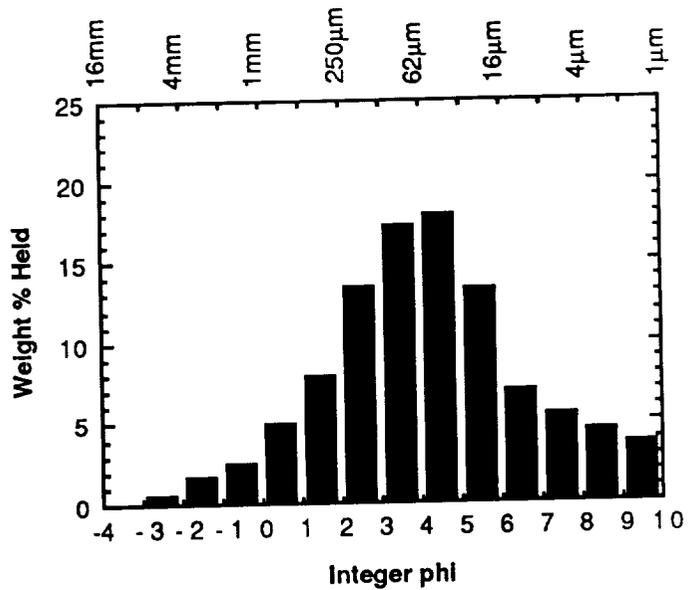
**GRAPHIC AND MOMENT MEASURES**

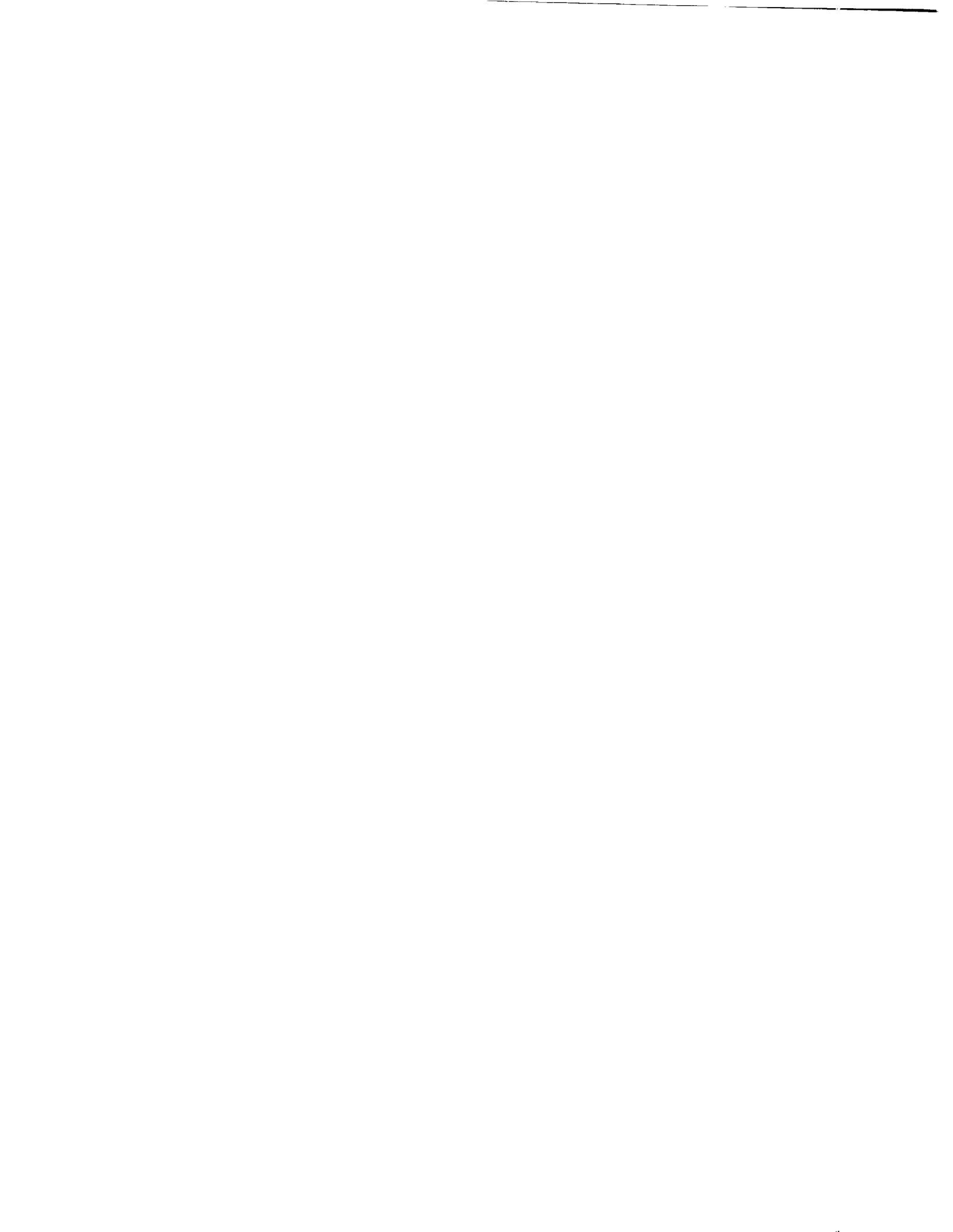
Mean:	4.26
Median:	4.12
Mode:	4.50
Sorting:	2.58
Skewness:	0.09
Kurtosis:	1.25

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.12
16	1.86
25	2.65
50	4.12
75	5.56
84	6.79
95	8.99

**SIZE DISTRIBUTION HISTOGRAM**





**Soil: 15290**  
(subsample 15291,1)  
LSPET PI

**LOCATION COMMENTS:**

Soil sample 15290 was collected with fine grained breccia 15295 10 to 15 meters south of the LRV. Soil 15290 includes soil from the immediate area and possible some fragments from 15295 which may have disintegrated in transit and handling into additional fines. This comminution of the breccia enriches the large size fractions of this soil and degrades the pristinity of the grain size distribution.

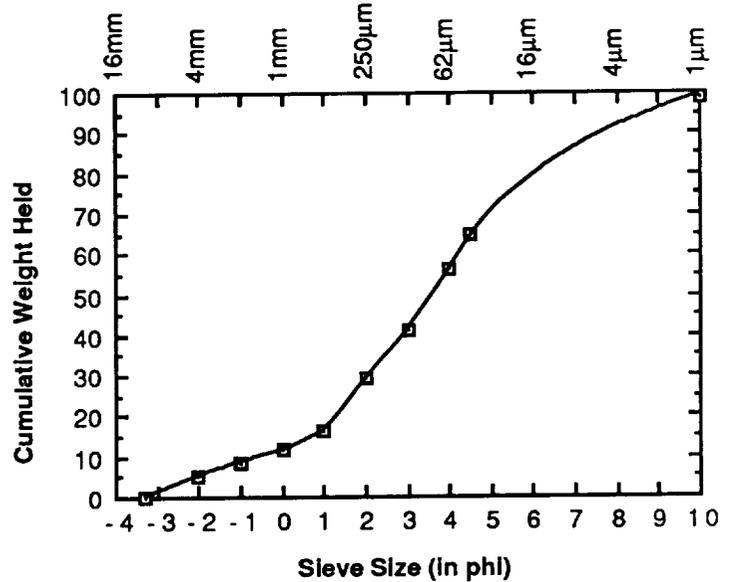
**MATURITY INDEX:**

$I_s/FeO = 63$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	5.25
2000.00	3.46
1000.00	2.77
500.00	5.05
250.00	12.67
125.00	11.98
62.50	15.15
44.00	8.61
1.00	34.06

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



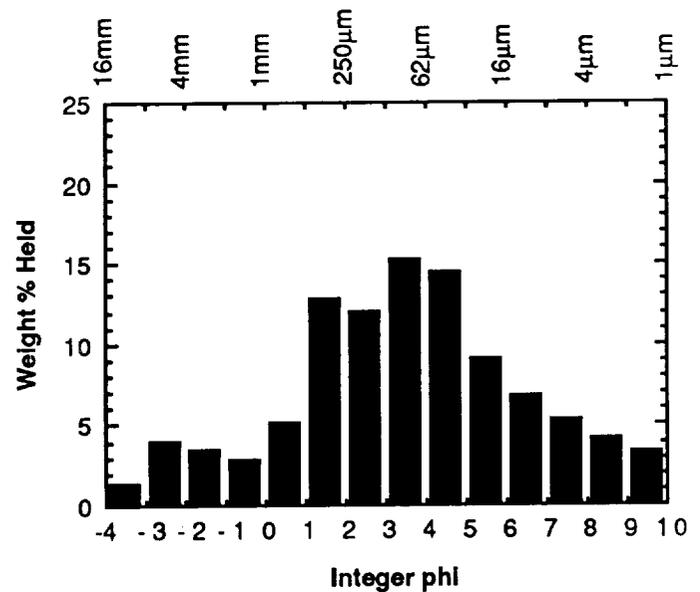
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.80
Median:	3.60
Mode:	3.50
Sorting:	3.17
Skewness:	0.04
Kurtosis:	1.17

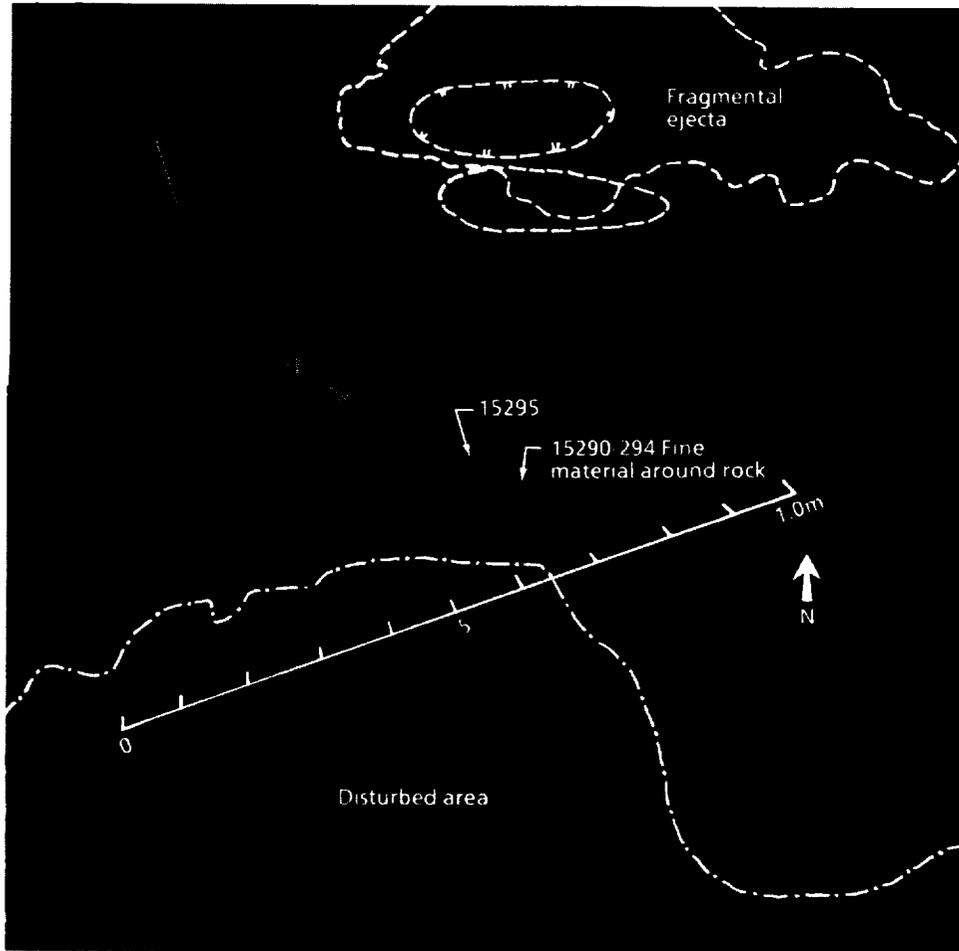
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.07
16	0.91
25	1.66
50	3.60
75	5.54
84	6.88
95	9.04

**SIZE DISTRIBUTION HISTOGRAM**



ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



15290 Sample Environment

AS15-86-11617

Pre-sampling.

**Soil: 15290**  
(subsample 15291,54)  
W.V. Engelhardt PI

**LOCATION COMMENTS:**

Soil sample 15290 was collected with fine grained breccia 15295, 10 to 15 meters south of the LRV. This sample includes soil from the immediate area and possibly some fragments from 15295 which may have disintegrated in transit and handling into additional fines. This comminution of the breccia enriches the large size fractions of this soil and degrades the pristinity of the size distribution.

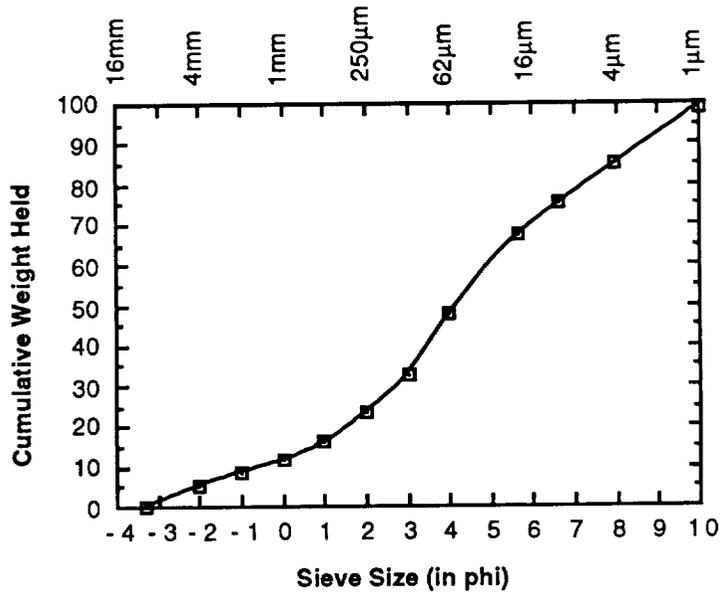
**MATURITY INDEX:**

$I_p/FeO = 63$  (mature)

**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000	0
4000	5.28
2000	3.47
1000	2.79
500	4.72
250	7.43
125	9.18
63	14.87
20	19.59
10	7.96
4	9.71
1	13.99
5	7.07
1	1.13

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



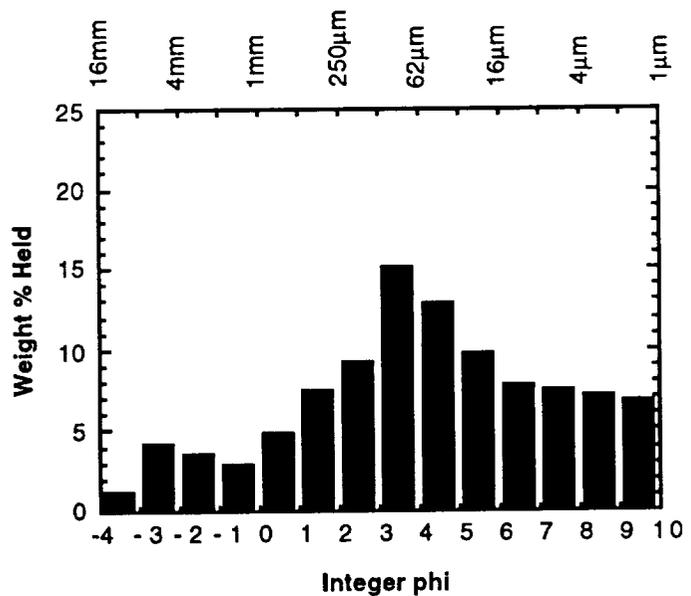
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.31
Median:	4.16
Mode:	3.5
Sorting:	3.45
Skewness:	-0.01
Kurtosis:	1.06

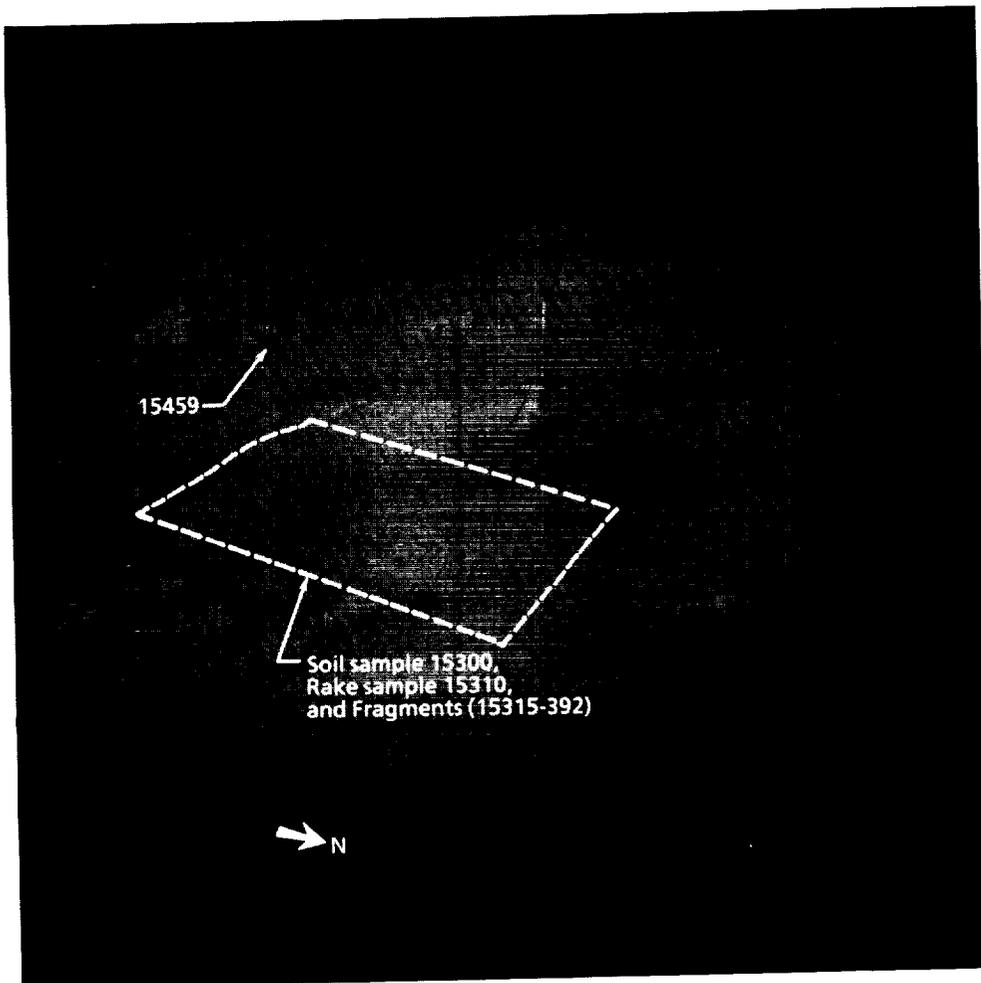
**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-2.08
16	0.95
25	2.16
50	4.16
75	6.6
84	7.83
95	9.38

**SIZE DISTRIBUTION HISTOGRAM**







15300 Sample Environment

AS15-90-12232

Pre-sampling.

**Soil: 15300**  
(subsample 15301,120)  
D.S. McKay PI

**LOCATION COMMENTS:**

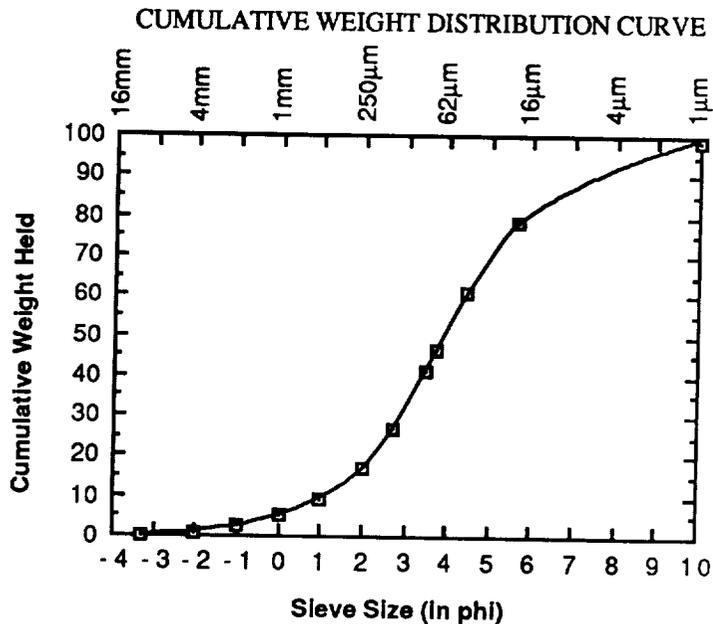
15300 was collected at Spur crater at Station 7 to accompany the comprehensive rake sample; 15305-15308, and 15315-15312. The sample area has moderately abundant small fragments on and near the rim crest of Spur crater.

**MATURITY INDEX:**

$I_s/FeO = 48$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.85
2000.00	1.48
1000.00	2.69
500.00	4.35
250.00	7.44
150.00	10.11
90.00	14.45
75.00	5.00
45.00	14.36
20.00	17.56
1.00	20.70

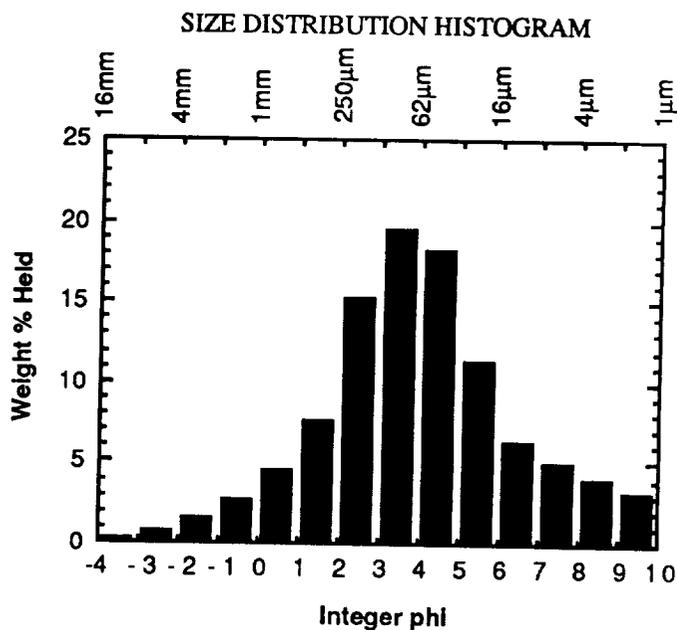


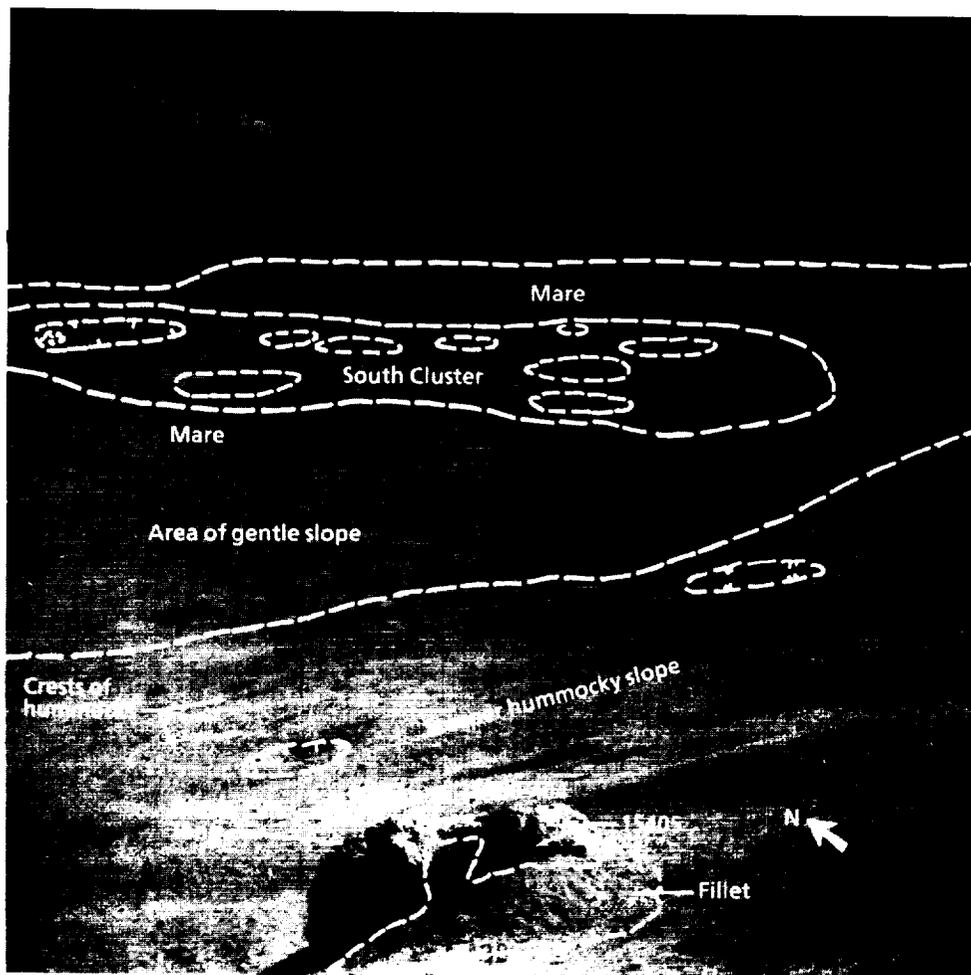
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.12
Median:	3.92
Mode:	3.50
Sorting:	2.50
Skewness:	0.12
Kurtosis:	1.33

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.01
16	1.91
25	2.61
50	3.92
75	5.35
84	6.51
95	8.88





15400 Sample Environment

AS15-90-12188

Pre-sampling, 15400  
located on sunlit portion of  
boulder.

**Soil: 15400**  
(subsample 15401,14)  
D.S. McKay PI

**LOCATION COMMENTS:**

Soil 15400 and green breccia 15405 were collected from the singular rounded 3 meter long boulder and from an apparent fillet developed high on the south side of the boulder. Relatively few fragments occur in the vicinity of the rock. Most are angular and lie on the fillet, but sparse fragments are found with random distribution in all directions. The samples are probably representative of the boulder and its disintegration products which may typify the composition of its fillet.

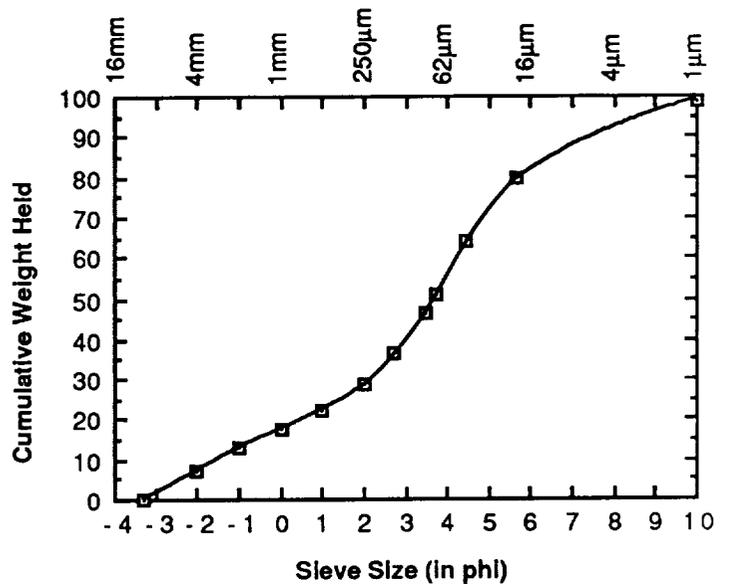
**MATURITY INDEX:**

$I_s/FeO = 5.6$  (immature)

**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	7.44
2000.00	5.74
1000.00	4.51
500.00	4.73
250.00	6.26
150.00	7.83
90.00	10.04
75.00	4.50
45.00	13.00
20.00	15.50
1.00	19.45

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



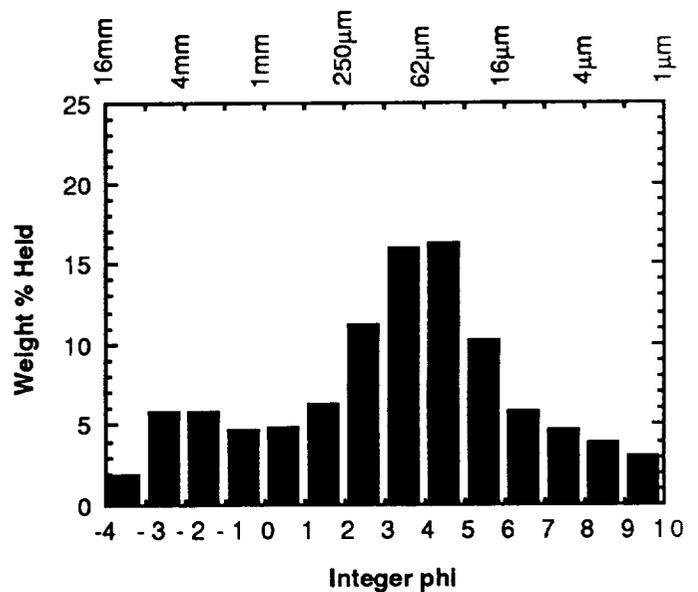
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.22
Median:	3.68
Mode:	4.50
Sorting:	3.38
Skewness:	-0.15
Kurtosis:	1.22

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-2.43
16	-0.37
25	1.46
50	3.68
75	5.22
84	6.35
95	8.81

**SIZE DISTRIBUTION HISTOGRAM**



# Soil: 15400

(subsample 15401,61)  
D.S. McKay PI

**LOCATION COMMENTS:**

Soil 15400 and green breccia 15405 were collected from the singular rounded 3 meter long boulder and from an apparent fillet developed high on the south side of the boulder. Relatively few fragments occur in the vicinity of the rock. Most are angular and lie on the fillet, but sparse fragments are found with random distribution in all directions. The samples are probably representative of the boulder and its disintegration products which may typify the composition of its fillet.

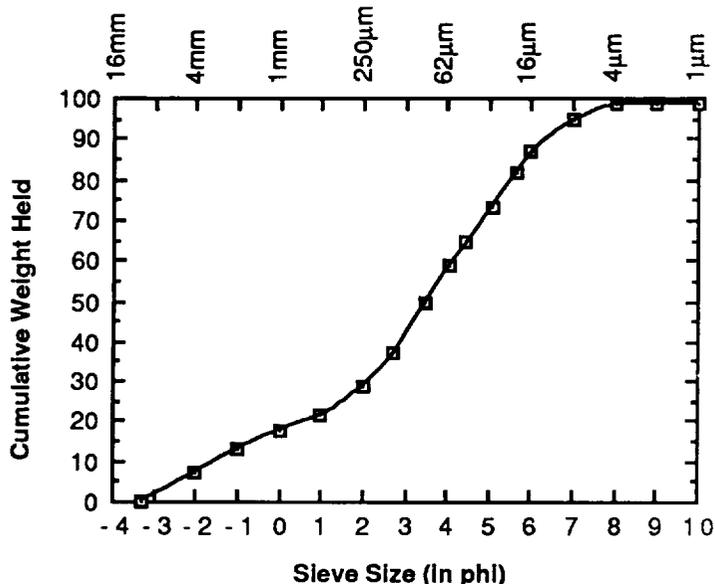
**MATURITY INDEX:**

$I_p/FeO = 5.6$  (immature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	7.43
2000.00	5.74
1000.00	4.51
500.00	3.76
250.00	7.47
150.00	8.21
90.00	12.57
60.00	9.41
45.00	5.36
30.00	8.96
20.00	8.56
15.60	4.76
7.80	7.82
3.90	3.91
2.00	0.46
1.00	0.05

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



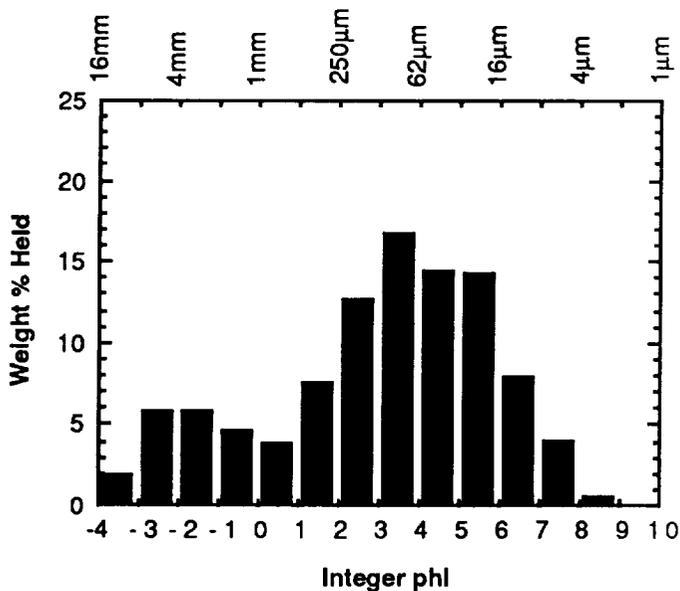
**GRAPHIC AND MOMENT MEASURES**

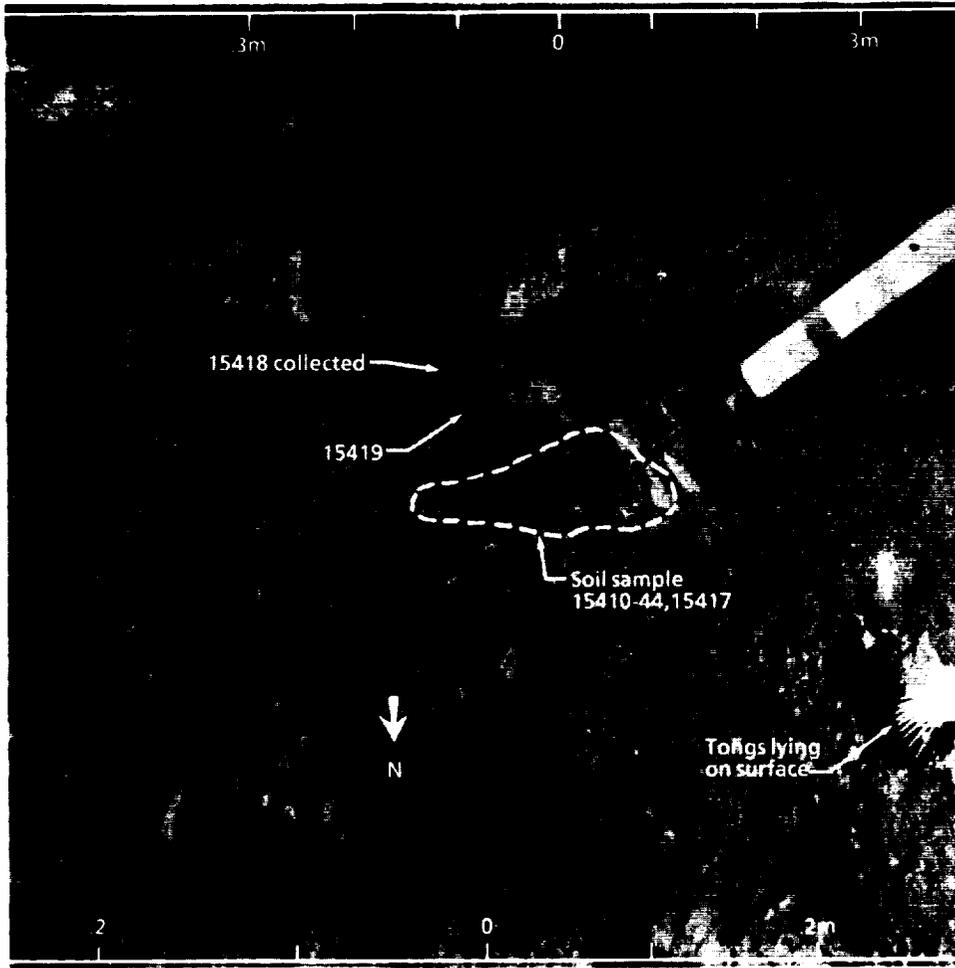
Mean:	2.96
Median:	3.49
Mode:	3.50
Sorting:	2.99
Skewness:	-0.25
Kurtosis:	1.08

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.43
16	-0.40
25	1.54
50	3.49
75	5.16
84	5.79
95	7.09

**SIZE DISTRIBUTION HISTOGRAM**





15410 Sample Environment

AS15-86-11664

Post-sampling.

**Soil: 15410**  
 (subsample 15411,42)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Collected at Station 7 from the summit of the subdued rim crest of Spur Crater. Local surface is moderately well populated with rock fragments up to tens of centimeters across. The sample area is characterized however by the abundance of less than 1 cm size fragments. Several large fragments in the sample have been excluded from the grain size analysis.

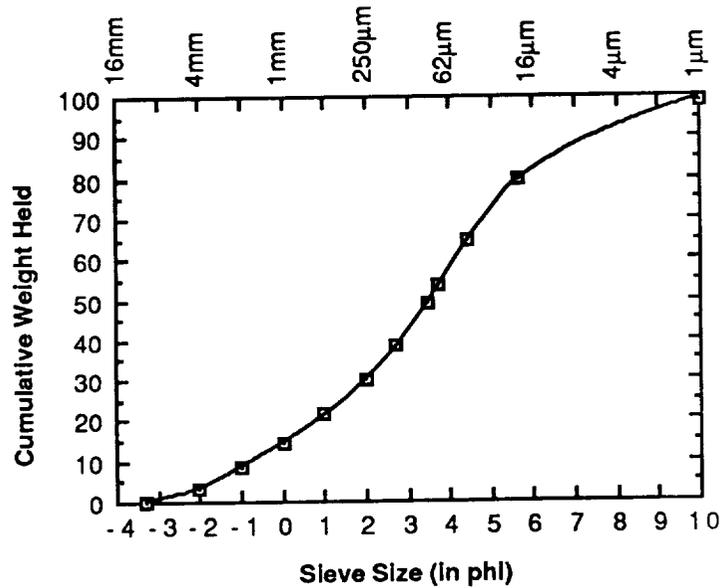
**MATURITY INDEX:**

$I_s/FeO = 43$  (submature)

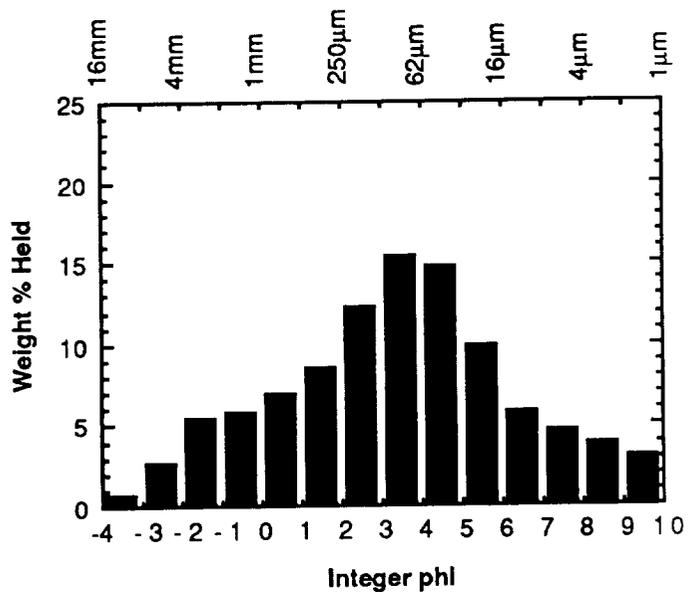
**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	3.27
2000.00	5.47
1000.00	5.80
500.00	6.80
250.00	8.54
150.00	8.75
90.00	10.56
75.00	4.13
45.00	11.66
20.00	14.62
1.00	19.38

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.36
Median:	3.53
Mode:	3.50
Sorting:	3.11
Skewness:	-0.03
Kurtosis:	1.15

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-1.67
16	0.23
25	1.46
50	3.53
75	5.20
84	6.34
95	8.81



15430 Sample Environment

AS15-86-11670

Pre-sampling.

**Soil: 15430**  
 (subsample 15431,17)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Sample collected at Station 7, 5 meters inside of the north rim of Spur crater. A clod and a soil were collected together as a surface sample. The clod tended to break down and degrade the size distribution for this soil. Station 7 was moderately well populated with rock fragments up to tens of centimeters across.

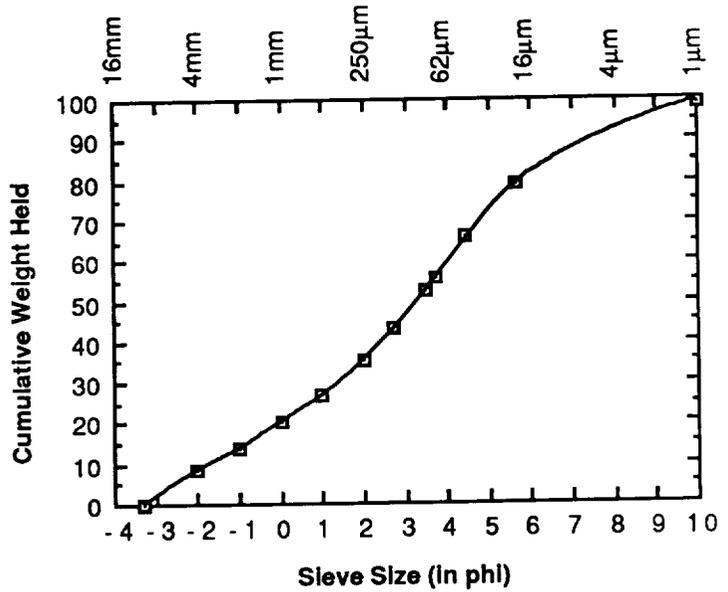
**MATURITY INDEX:**

$I_g/FcO = 39$  (submature)

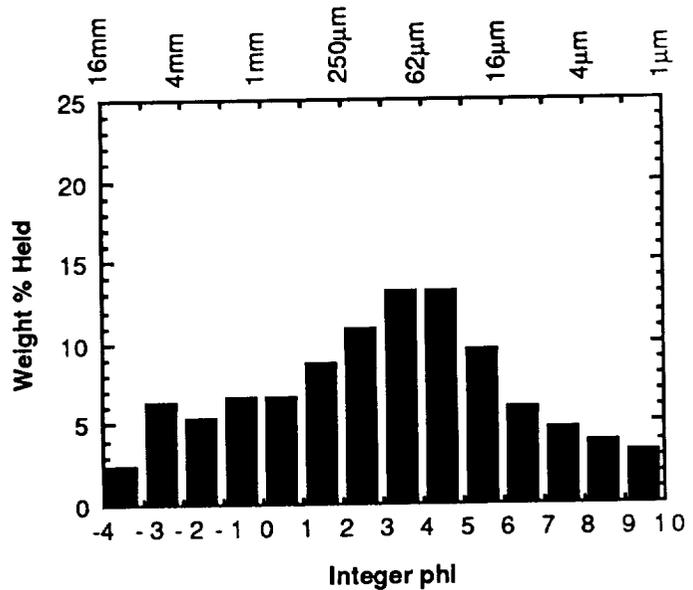
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	8.54
2000.00	5.17
1000.00	6.57
500.00	6.54
250.00	8.60
150.00	7.75
90.00	9.01
75.00	3.50
45.00	10.03
20.00	13.57
1.00	19.71

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**

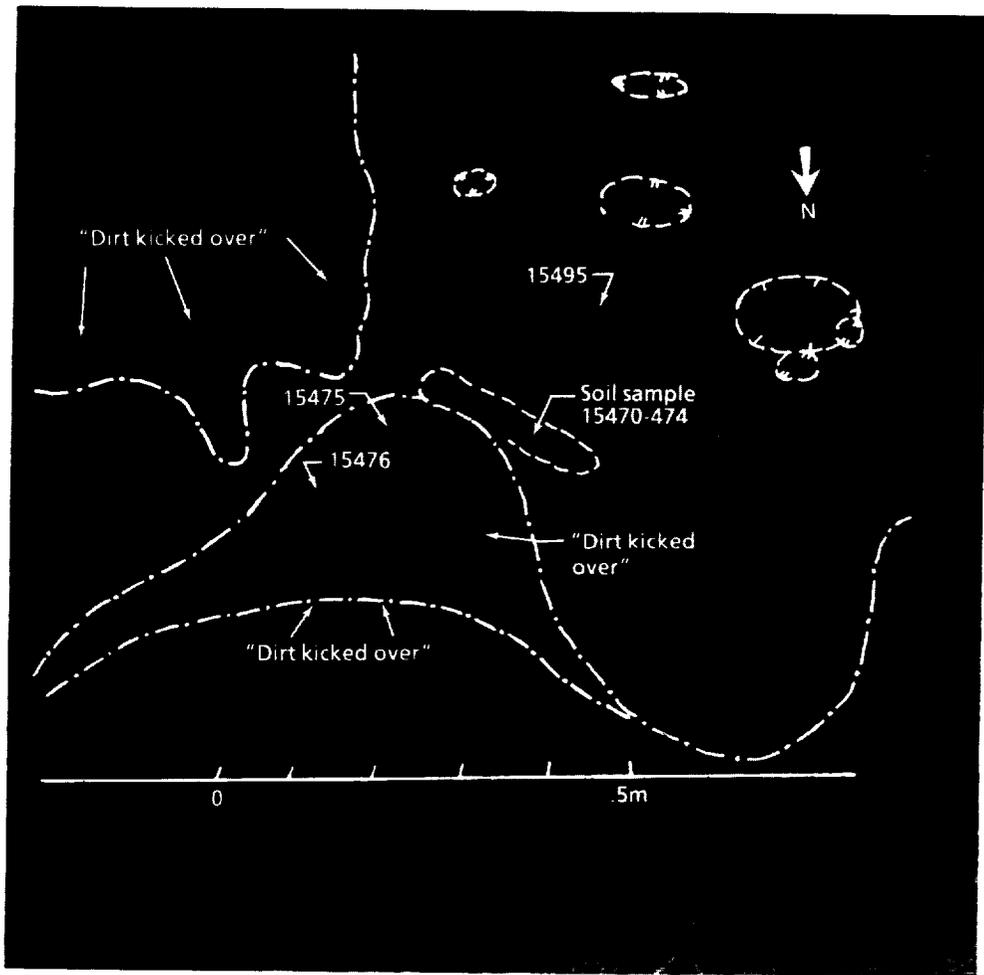


**GRAPHIC AND MOMENT MEASURES**

Mean:	3.01
Median:	3.30
Mode:	4.50
Sorting:	3.49
Skewness:	-0.08
Kurtosis:	1.04

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.60
16	-0.65
25	0.72
50	3.30
75	5.22
84	6.39
95	8.83



15470 Sample Environment

AS15-87-11759

Pre-sampling.

**Soil: 15470**  
(subsample 15471,18)  
D.S. McKay PI

**LOCATION COMMENTS:**

Soil 15470 and basalts 15475, 15476 and gabbro 15495 were collected at Station 4, 28 m southeast of the rim crest of Dune crater. The surface surrounding the samples has a moderate cover of fragments, small craters in the sample area are sparse. Two large fragments in the sample were excluded from grain size analysis.

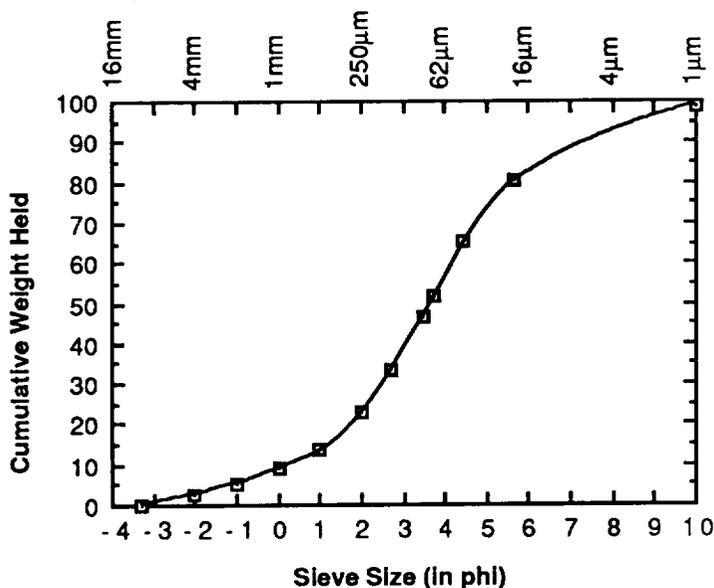
**MATURITY INDEX:**

$I_g/FeO = 34$  (submature)

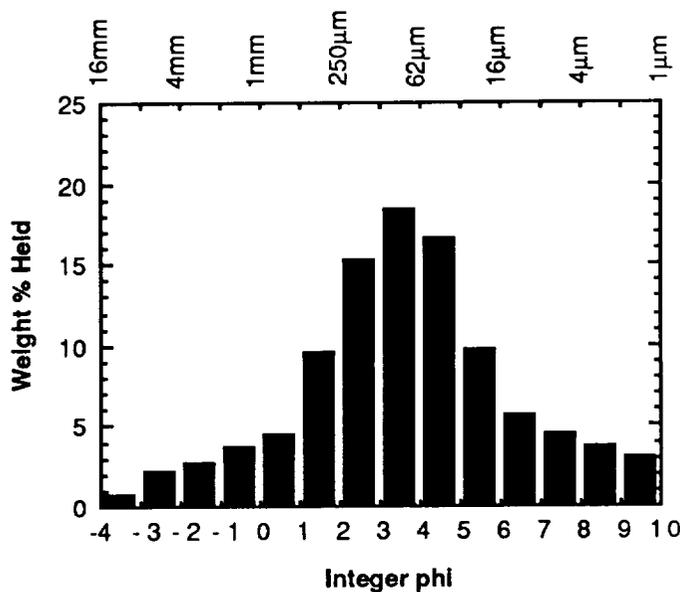
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.76
2000.00	2.64
1000.00	3.58
500.00	4.43
250.00	9.46
150.00	10.70
90.00	13.11
75.00	4.85
45.00	13.76
20.00	14.89
1.00	18.81

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.75
Median:	3.65
Mode:	3.50
Sorting:	2.73
Skewness:	0.05
Kurtosis:	1.37

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.14
16	1.35
25	2.17
50	3.65
75	5.14
84	6.26
95	8.78

**Soil: 15470**  
 (subsample 15471,48)  
 W.V. Engelhardt PI

**LOCATION COMMENTS:**

Soil 15470 and basalts 15475, 15476 and gabbro 15495 were collected at Station 4, 28 m southeast of the rim crest of Dune crater. The surface surrounding the samples has moderate cover of fragments, small catters in the sample area are sparse. Two large fragments in the sample were excluded from grain size analysis.

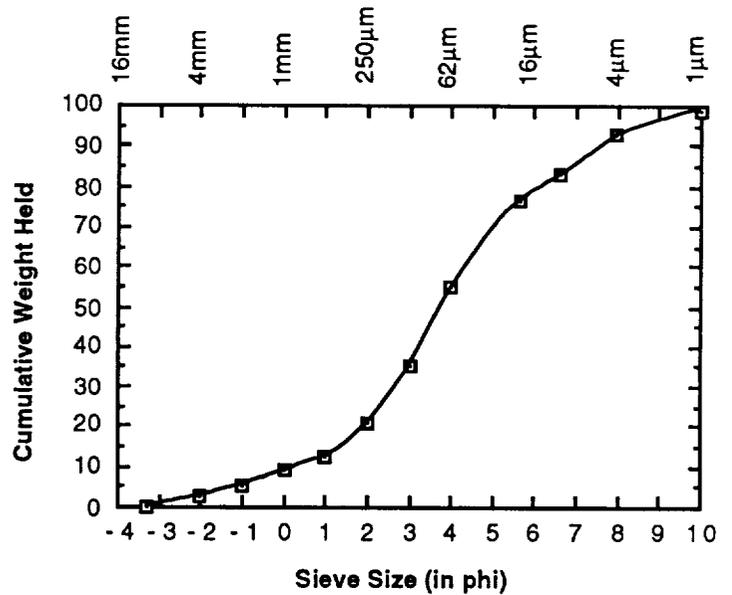
**MATURITY INDEX:**

$I_g/FeO = 34$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	2.76
2000	2.65
1000	3.59
500	3.6
250	8.19
125	14.67
63	19.17
20	22.14
10	6.39
4	9.63
1	6.21
5	7.07
1	1.13

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



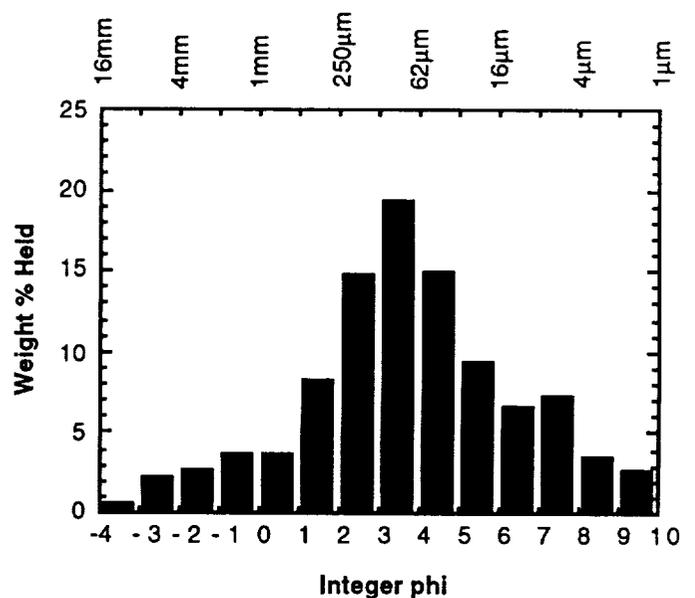
**GRAPHIC AND MOMENT MEASURES**

Mean:	4
Median:	3.73
Mode:	3.5
Sorting:	2.79
Skewness:	0.07
Kurtosis:	1.28

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.14
16	1.49
25	2.34
50	3.73
75	5.43
84	6.77
95	8.57

**SIZE DISTRIBUTION HISTOGRAM**





15500 Sample Environment

AS15-82-11105

Close up, pre-sampling.



**Soil: 15500**  
(subsample 15501,44)  
D.S. McKay PI

**LOCATION COMMENTS:**

Collected at Station 9, Scarp crater. This surface sample was collected 10 m from the rim of a 10 meter diameter fresh crater. The surface is saturated with "raindrop depressions" and fragments less than 1 cm in diameter.

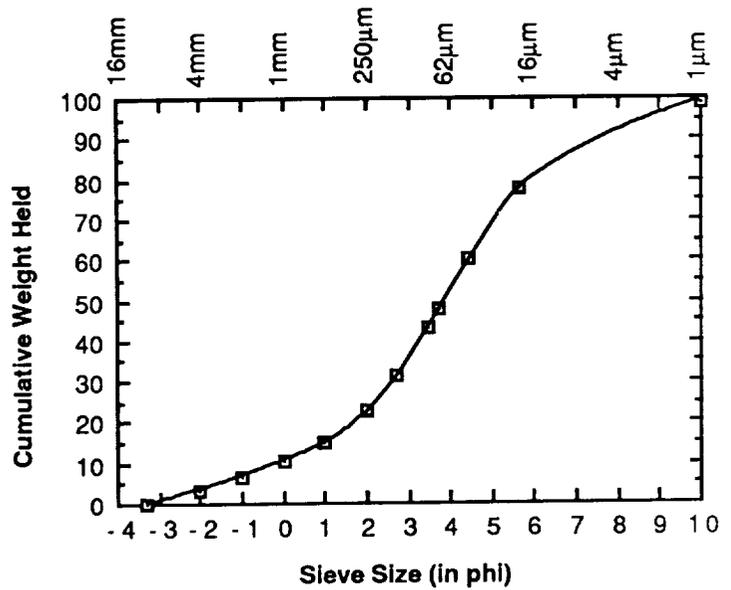
**MATURITY INDEX:**

$I_s/FeO = 51$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	3.52
2000.00	3.27
1000.00	3.78
500.00	4.35
250.00	7.72
150.00	8.67
90.00	11.97
75.00	4.41
45.00	12.55
20.00	17.86
1.00	20.90

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



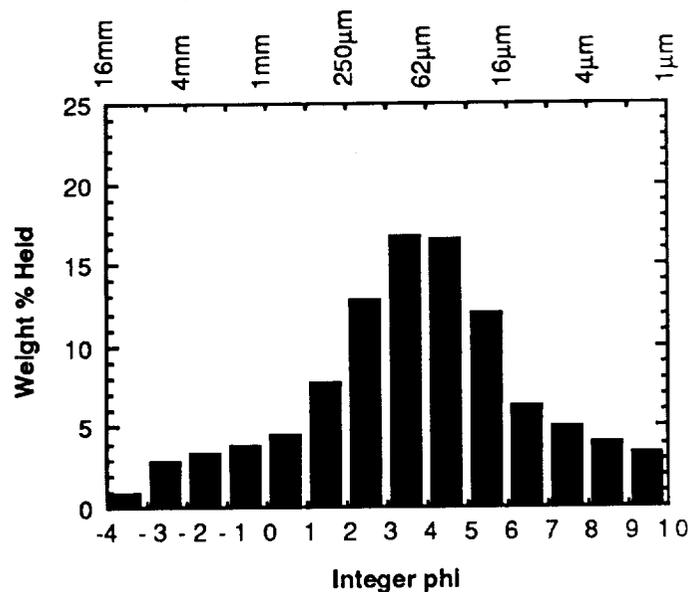
**GRAPHIC AND MOMENT MEASURES**

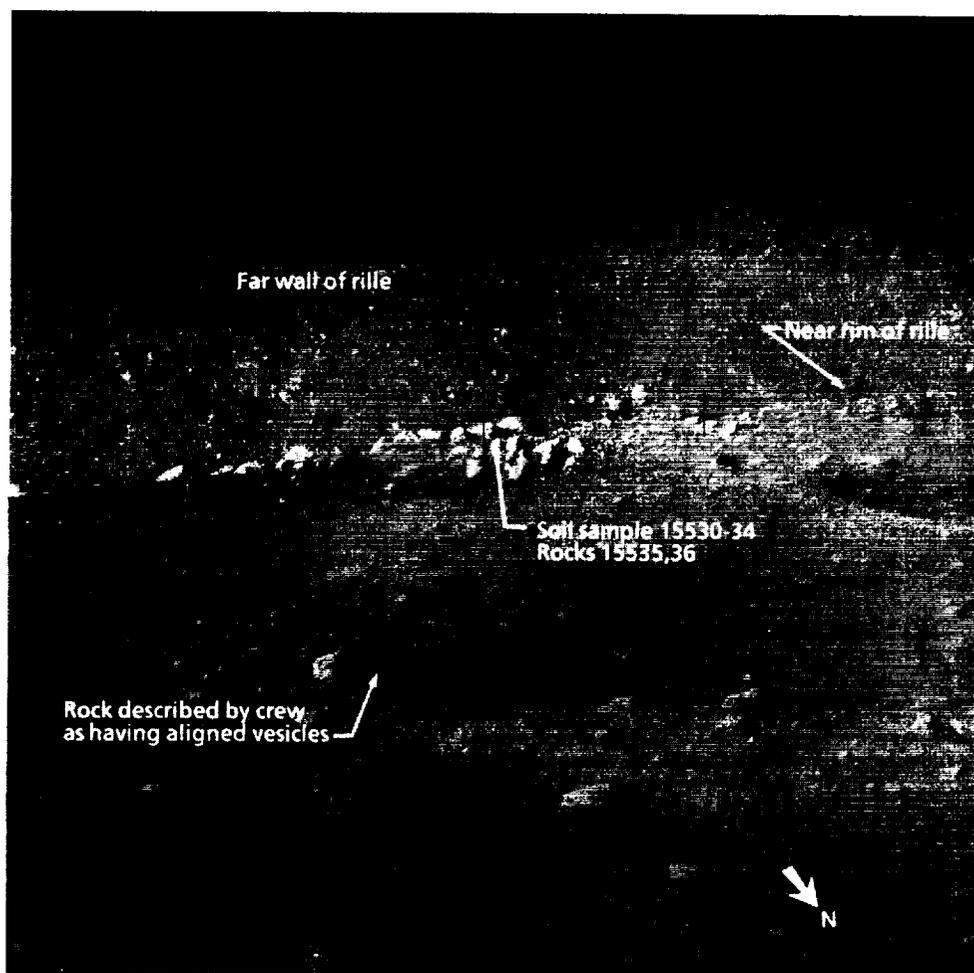
Mean:	3.86
Median:	3.87
Mode:	3.50
Sorting:	2.92
Skewness:	-0.02
Kurtosis:	1.35

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.53
16	1.19
25	2.23
50	3.87
75	5.40
84	6.54
95	8.89

**SIZE DISTRIBUTION HISTOGRAM**





15530 Sample Environment

AS15-82-11126

Pre-sampling.

Soil: 15530  
(subsample 15531,54)  
D.S. McKay PI

LOCATION COMMENTS:

15530 was collected with a suite of rocks, fragments, and cores at Station 9A. The soil sample was taken about 20 m east of the rim of Hadley Rille, its exact location has not been identified on the surface photographs. The ground slopes gently from the sample site toward the rim of Hadley Rille; rock fragments on the surface become increasingly abundant as the rille rim is approached.

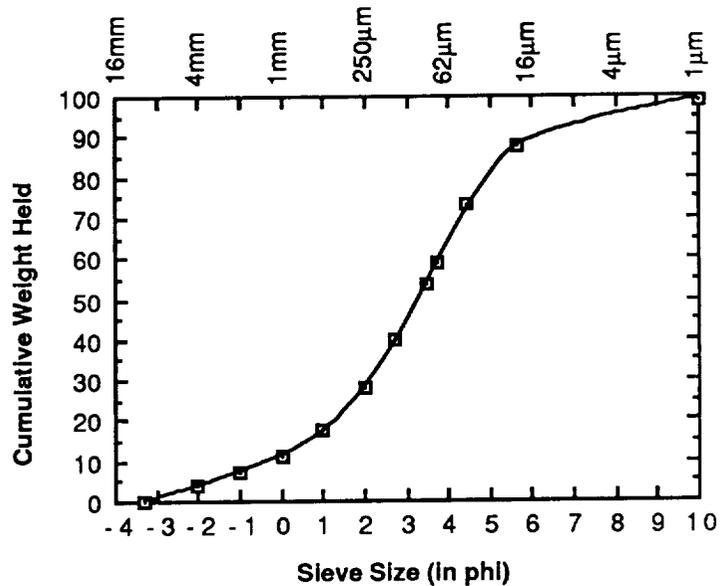
MATURITY INDEX:

$I_s/FeO = 27$  (immature)

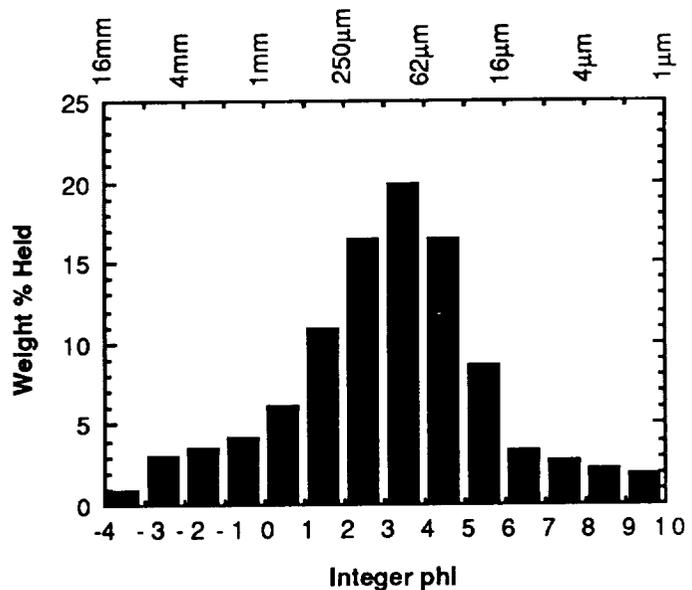
TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	3.86
2000.00	3.48
1000.00	4.06
500.00	6.07
250.00	10.73
150.00	11.62
90.00	13.82
75.00	5.42
45.00	13.82
20.00	14.85
1.00	11.27

CUMULATIVE WEIGHT DISTRIBUTION CURVE



SIZE DISTRIBUTION HISTOGRAM

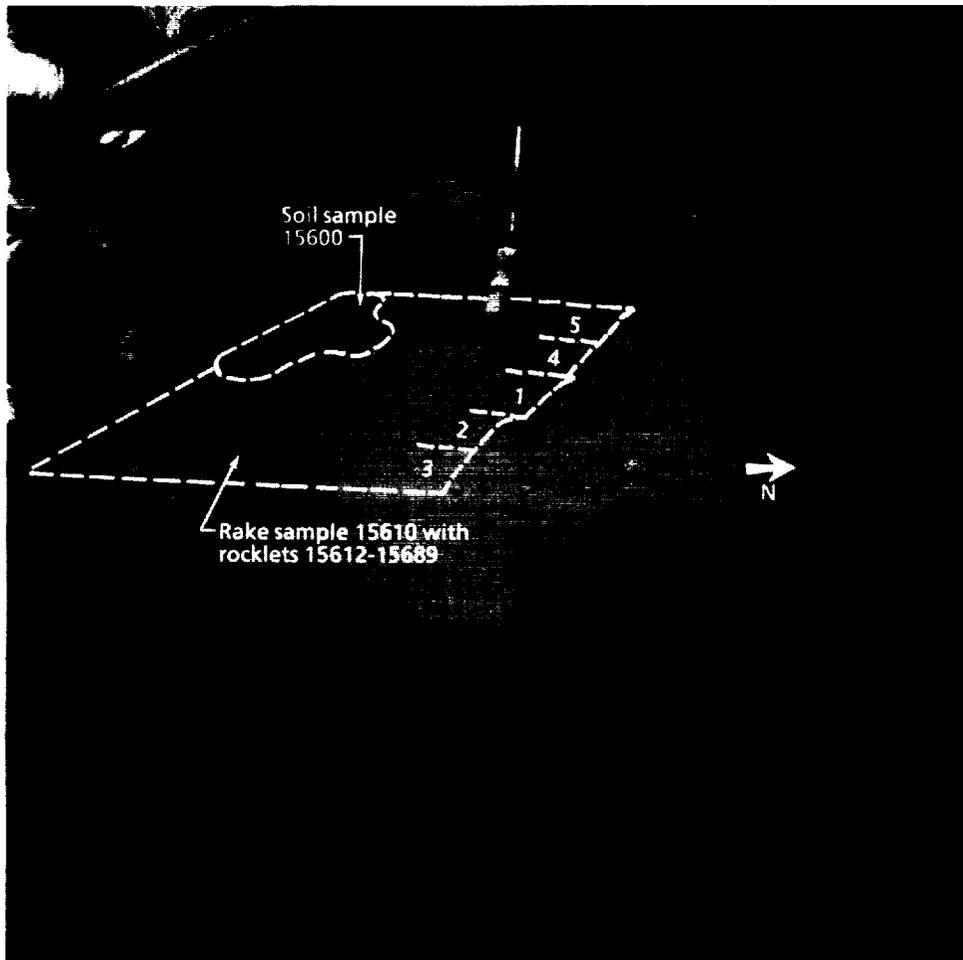


GRAPHIC AND MOMENT MEASURES

Mean:	3.10
Median:	3.29
Mode:	3.50
Sorting:	2.58
Skewness:	-0.07
Kurtosis:	1.39

MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-1.65
16	0.79
25	1.74
50	3.29
75	4.61
84	5.23
95	8.07



15600 Sample Environment

AS15-82-11153

Just prior to collecting rake  
sample.

**Soil: 15600**  
(subsample 15601,96)  
D.S. McKay PI

**LOCATION COMMENTS:**

This comprehensive soil was collected at Station 9A to accompany the rake samples 20 m northeast of the rim of Hadley Rille. The surface around the sample is smooth, level, and locally free of rock fragments greater than 5 cm across. The general vicinity is littered with fragments commonly up to 20 cm across and a few sparse scattered boulders greater than a meter across.

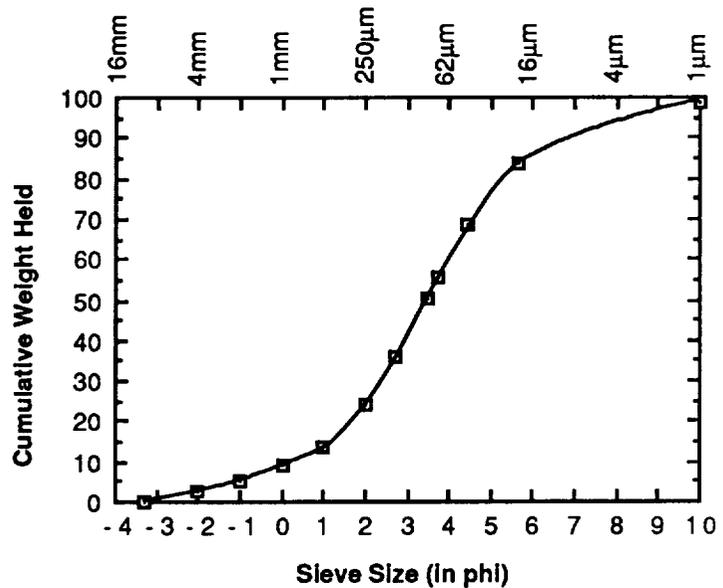
**MATURITY INDEX:**

$I_s/FeO = 29$  (immature)

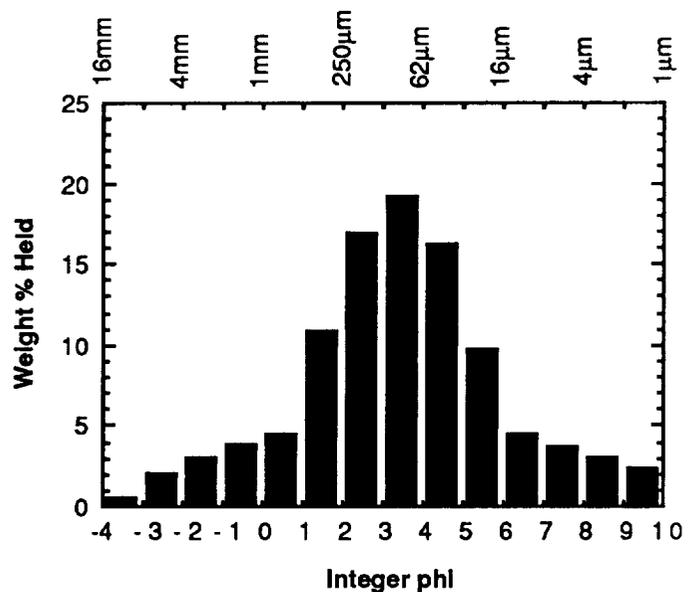
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.42
2000.00	2.86
1000.00	3.69
500.00	4.45
250.00	10.72
150.00	11.82
90.00	14.39
75.00	4.94
45.00	13.01
20.00	15.64
1.00	15.05

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.48
Median:	3.45
Mode:	3.50
Sorting:	2.54
Skewness:	0.03
Kurtosis:	1.38

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.09
16	1.32
25	2.06
50	3.45
75	4.91
84	5.65
95	8.50

**Soil: 15600**  
(subsample 15601,99)  
W.V. Engelhardt PI

**LOCATION COMMENTS:**

This comprehensive soil was collected at Station 9A to accompany the rake samples 20 m northeast of the rim of Hadley Rille. The surface around the sample is smooth, level, and locally free of rock fragments greater than 5 cm across. The general vicinity is littered with fragments commonly up to 20 cm across and a few sparse scattered boulders greater than a meter across.

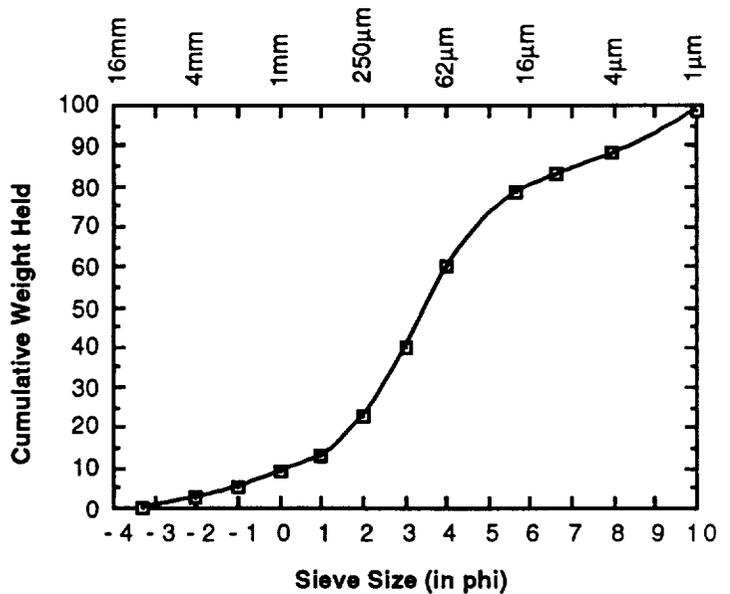
**MATURITY INDEX:**

$I_s/FeO = 29$  (immature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	2.41
2000	2.86
1000	3.69
500	4.14
250	9.9
125	16.75
63	20.44
20	18.1
10	4.5
4	5.13
1	11.07

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



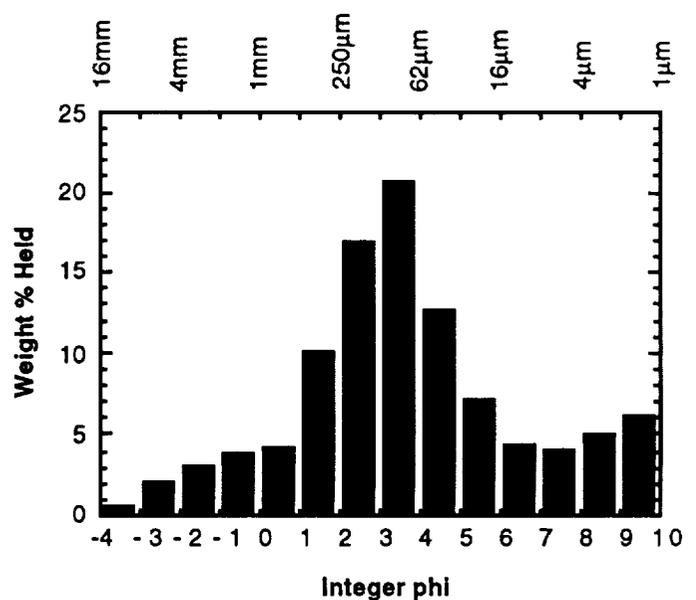
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.94
Median:	3.5
Mode:	3.5
Sorting:	2.98
Skewness:	0.18
Kurtosis:	1.41

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.09
16	1.37
25	2.15
50	3.5
75	5.18
84	6.94
95	9.36

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 24077**  
(subsample 24077,9)  
D.S. McKay PI

**LOCATION COMMENTS:**

Sample collected from the Luna 24 site in the Sea of Crises. The site was 17 km from a large crater 10 km in diameter and 2 km deep, and the hope was to obtain ejecta samples. A core was drilled to a depth of approximately 2 meters. U.S. scientists were given samples totalling 3 grams; these were divided into 6 soil samples and one rock fragment. The Moscow Institute of Geochemistry reports that the Luna 24 soil included more large grains than the Luna 16 soils.

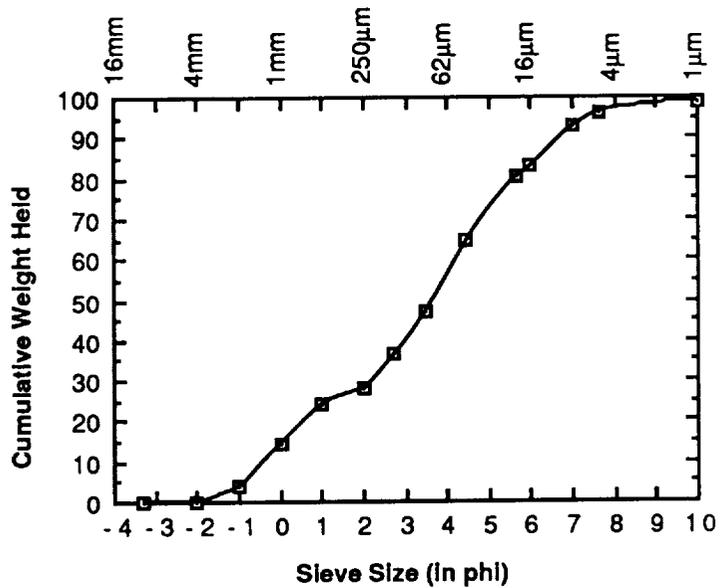
**MATURITY INDEX:**

$I_g/FeO = 39$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	3.69
1000.00	10.84
500.00	9.85
250.00	3.69
150.00	8.22
90.00	10.57
45.00	17.86
20.00	15.50
16.00	2.46
8.00	9.86
5.00	3.72
1.00	2.74

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



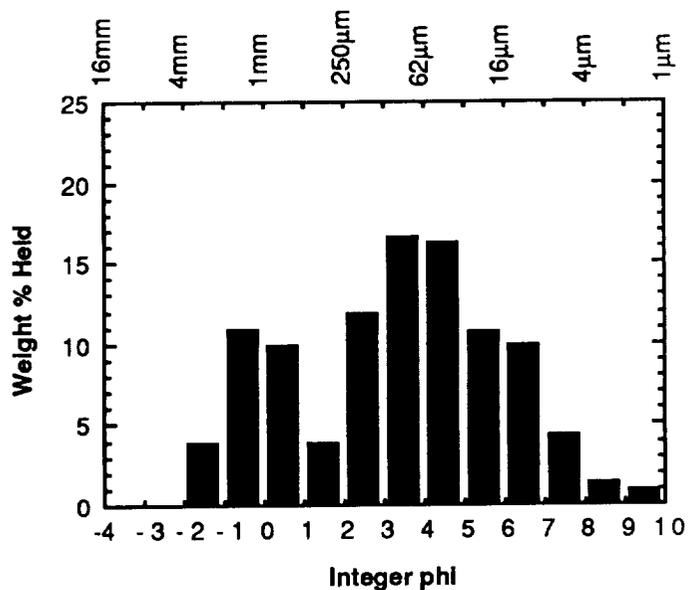
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.31
Median:	3.66
Mode:	3.50
Sorting:	2.74
Skewness:	-0.14
Kurtosis:	0.84

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.85
16	0.14
25	1.15
50	3.66
75	5.18
84	6.12
95	7.37

**SIZE DISTRIBUTION HISTOGRAM**





**Soil: 24109**  
(subsample 24109,13)  
D.S. McKay PI

**LOCATION COMMENTS:**

Sample collected from the Luna 24 site in the Sea of Crises. The site was 17 km from a large crater 10 km in diameter and 2 km deep, and the hope was to obtain ejecta samples. A core was drilled to a depth of approximately 2 meters. U.S. scientists were given samples totalling 3 grams; these were divided into 6 soil samples and one rock fragment. The Moscow Institute of Geochemistry reports that the Luna 24 soil included more large grains than the Luna 16 soils.

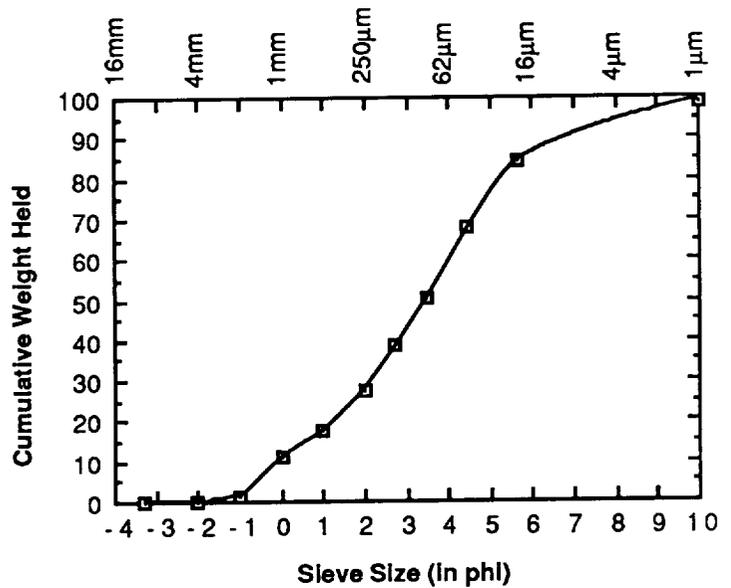
**MATURITY INDEX:**

$I_s/FeO = 31$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	1.41
1000.00	9.59
500.00	6.77
250.00	9.87
150.00	10.70
90.00	11.90
45.00	17.86
20.00	16.52
1.00	14.38

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



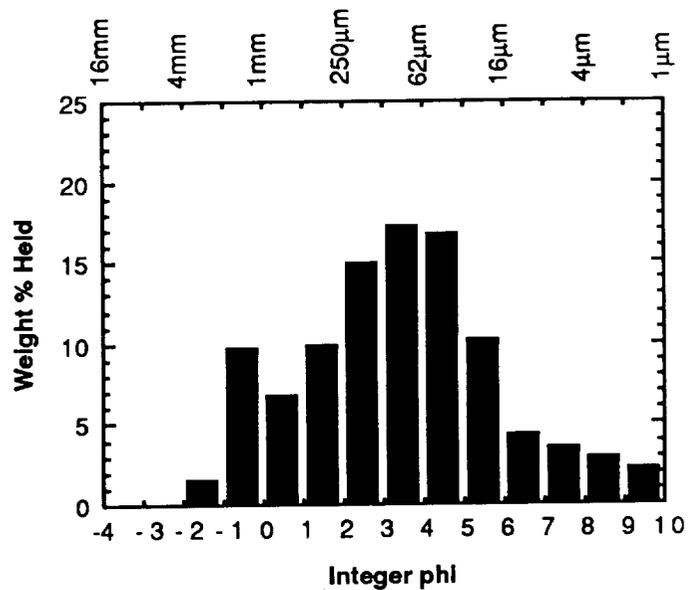
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.26
Median:	3.46
Mode:	3.50
Sorting:	2.57
Skewness:	-0.01
Kurtosis:	1.18

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.59
16	0.75
25	1.77
50	3.46
75	4.92
84	5.56
95	8.44

**SIZE DISTRIBUTION HISTOGRAM**



Soil: 24149  
(subsample 24149,15)  
D.S. McKay PI

LOCATION COMMENTS:

Sample collected from the Luna 24 site in the Sea of Crises. The site was 17 km from a large crater 10 km in diameter and 2 km deep, and the hope was to obtain ejecta samples. A core was drilled to a depth of approximately 2 meters. U.S. scientists were given samples totalling 3 grams; these were divided into 6 soil samples and one rock fragment. The Moscow Institute of Geochemistry reports that the Luna 24 soil included more large grains than the Luna 16 soils.

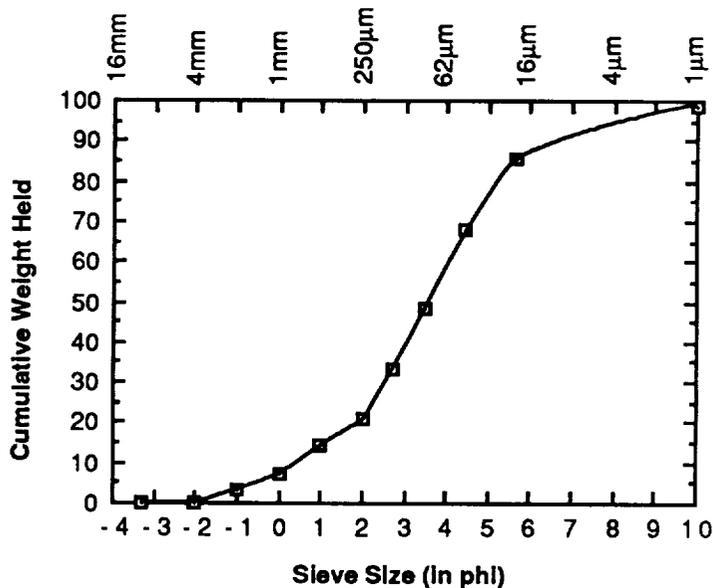
MATURITY INDEX:

$I_g/FeO = 21$  (immature)

TABULATED SIEVE DATA

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	3.07
1000.00	3.90
500.00	7.25
250.00	6.42
150.00	12.91
90.00	14.58
45.00	19.67
20.00	17.84
1.00	13.36

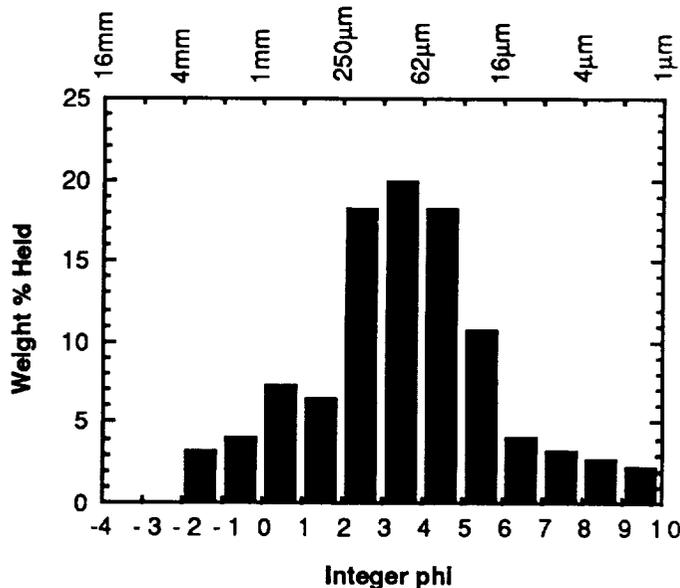
CUMULATIVE WEIGHT DISTRIBUTION CURVE



GRAPHIC AND MOMENT MEASURES

Mean:	3.43
Median:	3.57
Mode:	3.50
Sorting:	2.38
Skewness:	-0.01
Kurtosis:	1.38

SIZE DISTRIBUTION HISTOGRAM



MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-0.47
16	1.27
25	2.27
50	3.57
75	4.90
84	5.46
95	8.35

**Soil: 24174**  
 (subsample 24174,10)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Sample collected from the Luna 24 site in the Sea of Crises. The site was 17 km from a large crater 10 km in diameter and 2 km deep, and the hope was to obtain ejecta samples. A core was drilled to a depth of approximately 2 meters. U.S. scientists were given samples totalling 3 grams; these were divided into 6 soil samples and one rock fragment. The Moscow Institute of Geochemistry reports that the Luna 24 soil included more large grains than the Luna 16 soils.

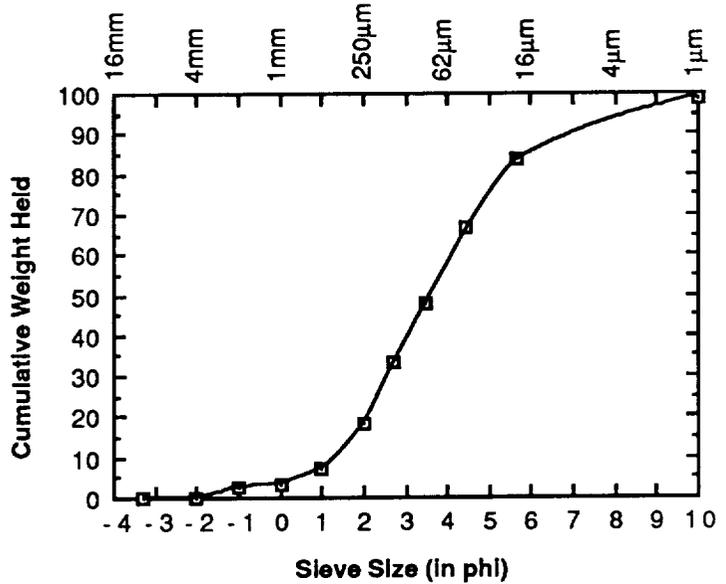
**MATURITY INDEX:**

$I_g/FeO = 27$  (immature)

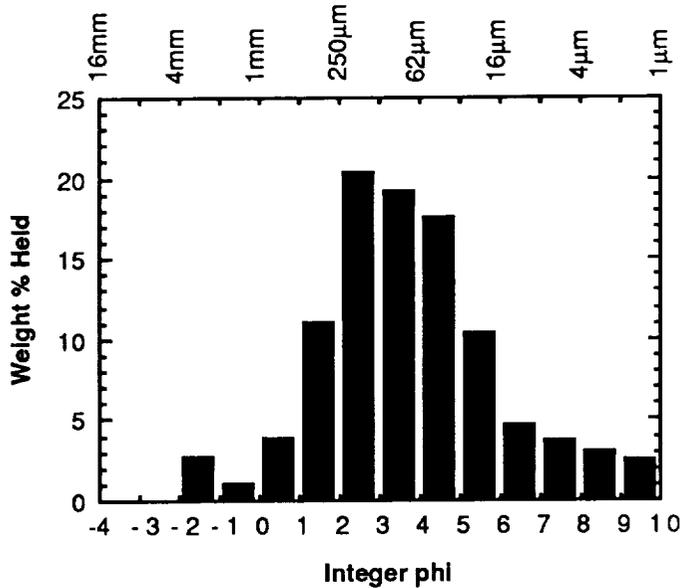
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	2.55
1000.00	1.02
500.00	3.83
250.00	10.97
150.00	15.19
90.00	14.02
45.00	19.26
20.00	16.63
1.00	15.53

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.72
Median:	3.60
Mode:	2.50
Sorting:	2.20
Skewness:	0.16
Kurtosis:	1.24

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.47
16	1.82
25	2.32
50	3.60
75	4.98
84	5.74
95	8.54

**Soil: 24182**  
(subsample 24182,15)  
D.S. McKay PI

**LOCATION COMMENTS:**

Sample collected from the Luna 24 site in the Sea of Crises. The site was 17 km from a large crater 10 km in diameter and 2 km deep, and the hope was to obtain ejecta samples. A core was drilled to a depth of approximately 2 meters. U.S. scientists were given samples totalling 3 grams; these were divided into 6 soil samples and one rock fragment. The Moscow Institute of Geochemistry reports that the Luna 24 soil included more large grains than the Luna 16 soils.

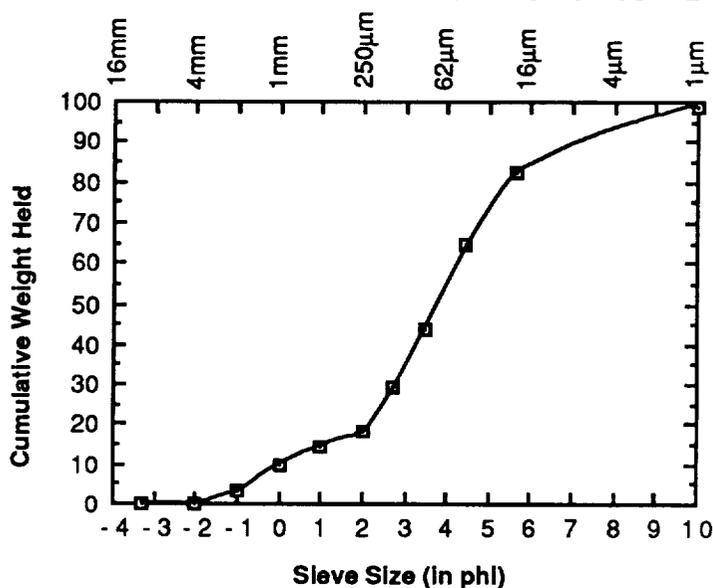
**MATURITY INDEX:**

$I_g/FeO = 19$  (immature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	3.24
1000.00	6.74
500.00	4.58
250.00	3.50
150.00	11.18
90.00	14.81
45.00	20.57
20.00	17.77
1.00	16.59

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



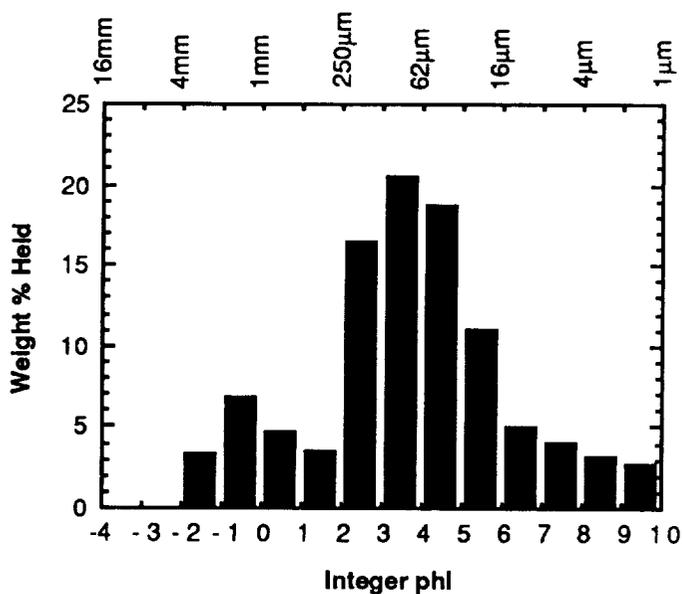
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.70
Median:	3.76
Mode:	3.50
Sorting:	2.54
Skewness:	-0.00
Kurtosis:	1.47

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.69
16	1.40
25	2.49
50	3.76
75	5.08
84	5.92
95	8.63

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 24210**  
(subsample 24210,9)  
D.S. McKay PI

**LOCATION COMMENTS:**

Sample collected from the Luna 24 site in the Sea of Crises. The site was 17 km from a large crater 10 km in diameter and 2 km deep, and the hope was to obtain ejecta samples. A core was drilled to a depth of approximately 2 meters. U.S. scientists were given samples totalling 3 grams; these were divided into 6 soil samples and one rock fragment. The Moscow Institute of Geochemistry reports that the Luna 24 soil included more large grains than the Luna 16 soils.

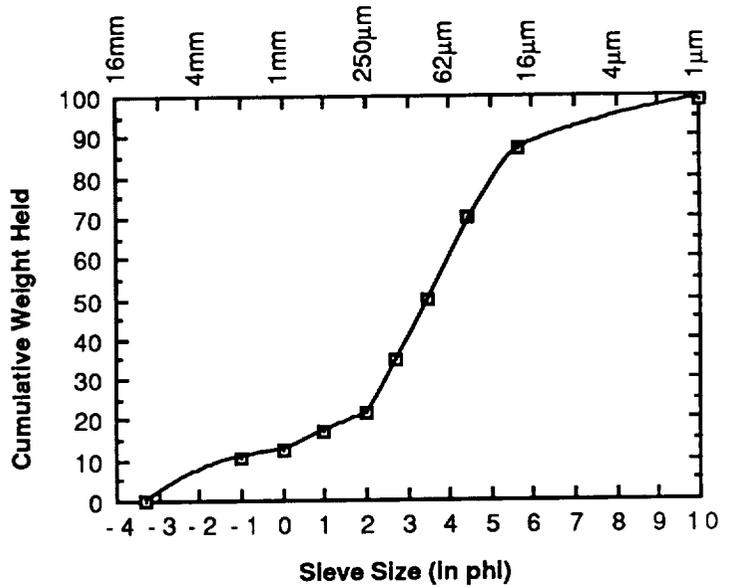
**MATURITY INDEX:**

$I_g/FeO = 19$  (immature)

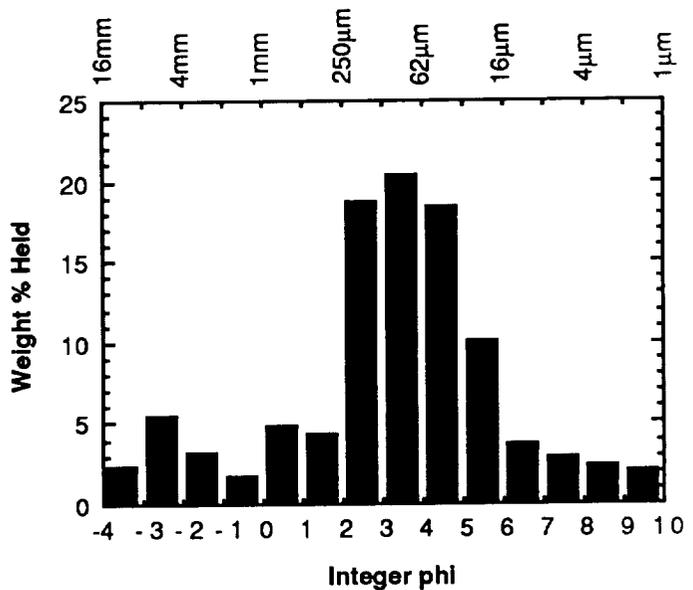
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	10.71
1000.00	1.71
500.00	4.71
250.00	4.29
150.00	13.38
90.00	14.69
45.00	20.40
20.00	17.06
1.00	12.04

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.20
Median:	3.50
Mode:	3.50
Sorting:	2.80
Skewness:	-0.17
Kurtosis:	1.74

**MOMENT MEASURE DATA**

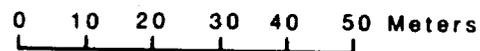
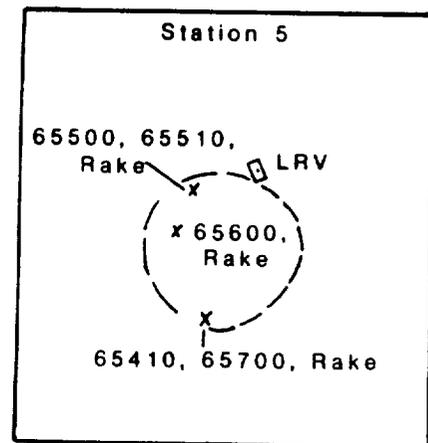
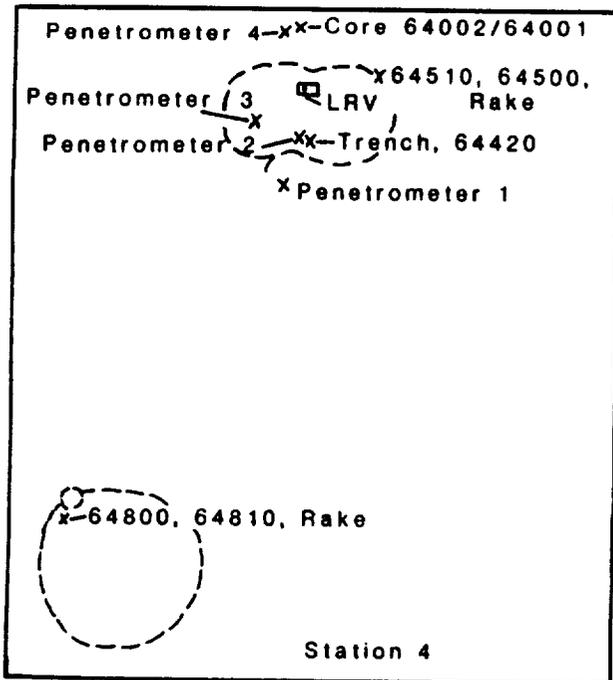
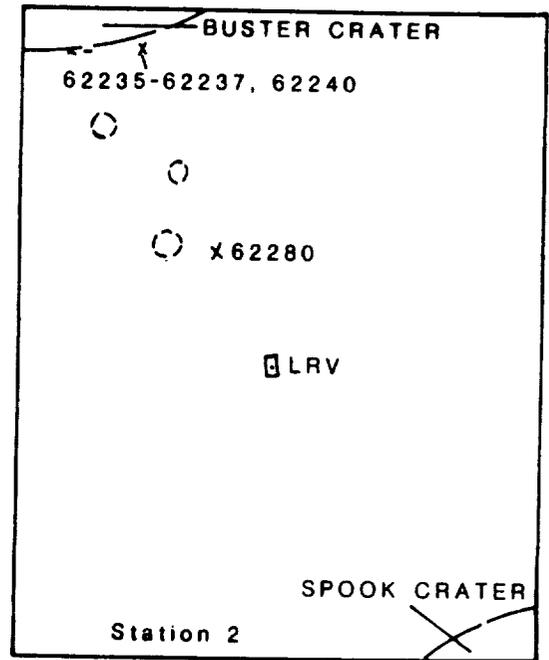
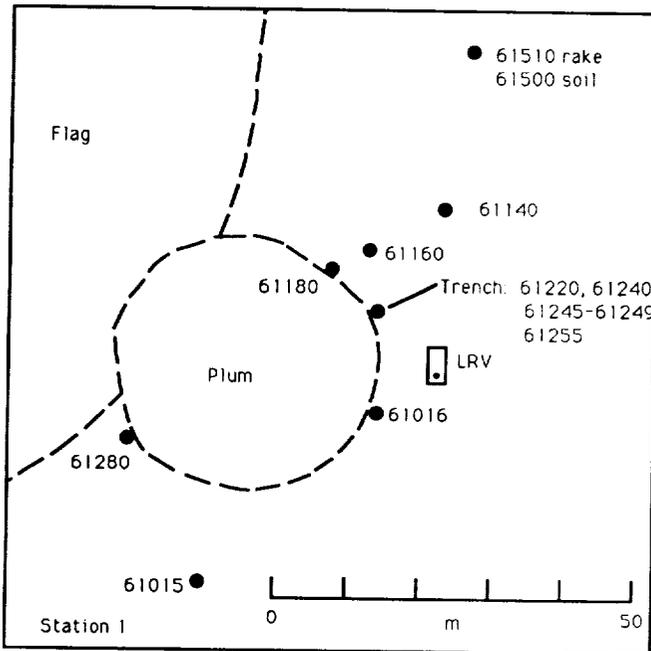
Wt % held	$\phi$ size
5	-2.70
16	0.75
25	2.22
50	3.50
75	4.78
84	5.34
95	8.19



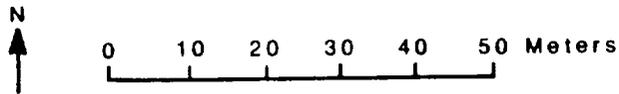
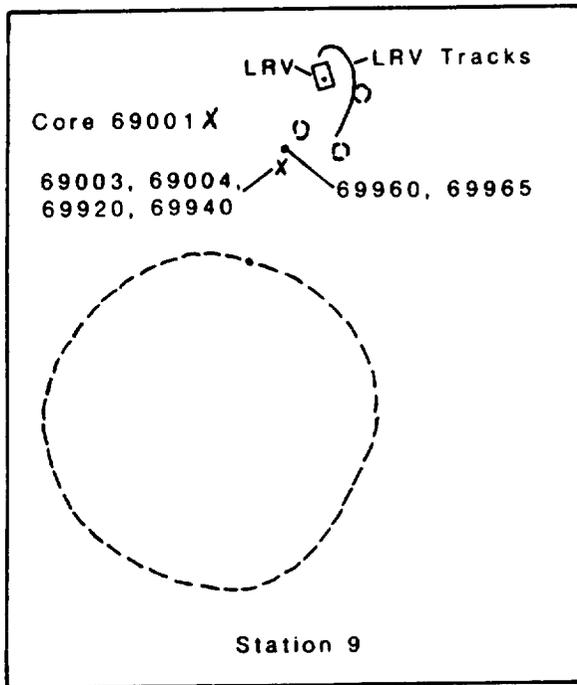
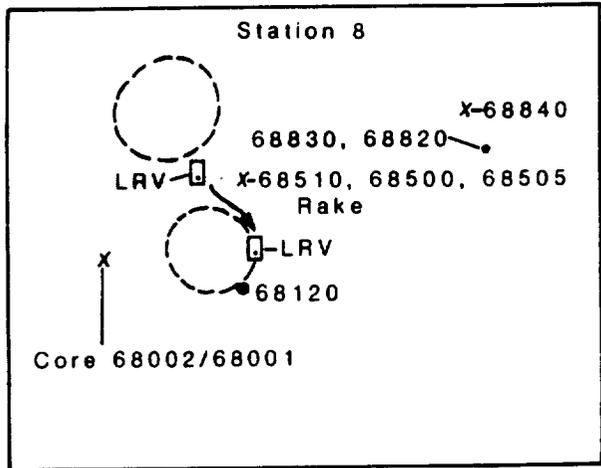
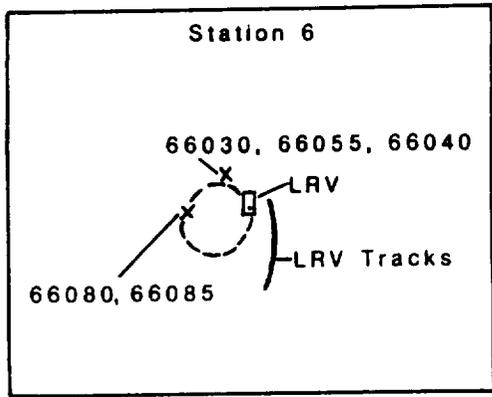


Map of Apollo 16 landing site  
from Apollo 16 Preliminary Science Report.

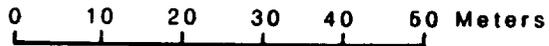
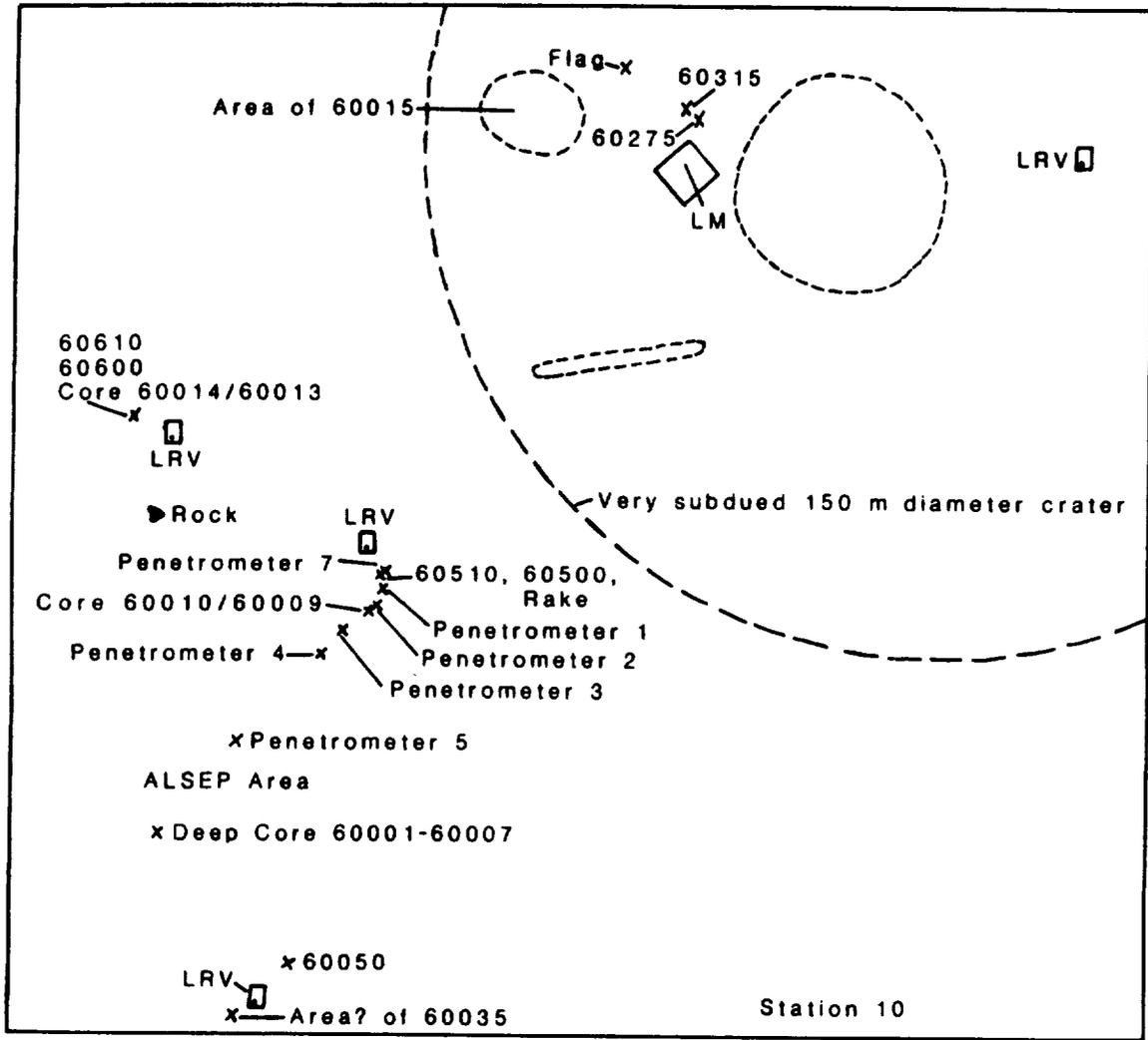
ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



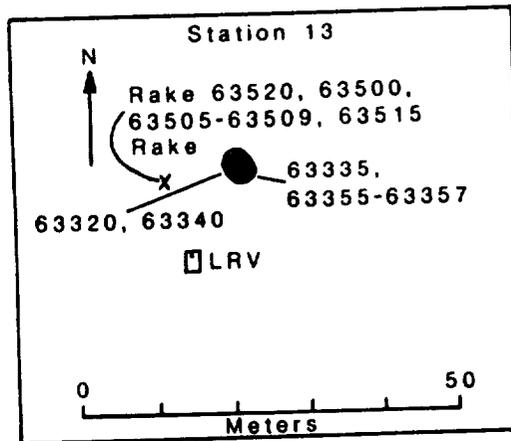
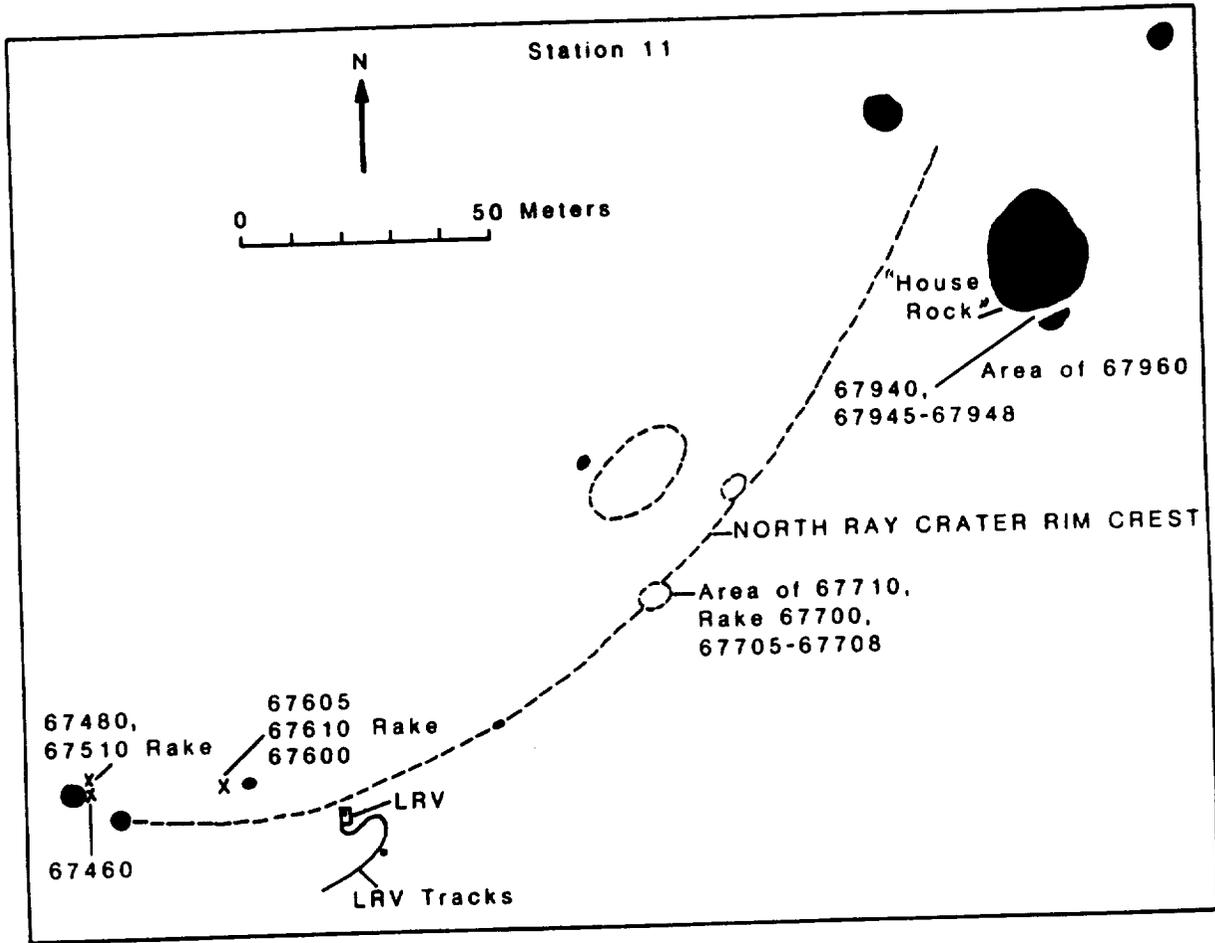
Apollo 16 sample collection sites  
from the Handbook of Lunar soils, voice transcripts  
and surface photos.



**Apollo 16 sample collection sites  
from the Handbook of Lunar Soils.**



Apollo 16 sample collection sites  
from the Handbook of Lunar Soils.

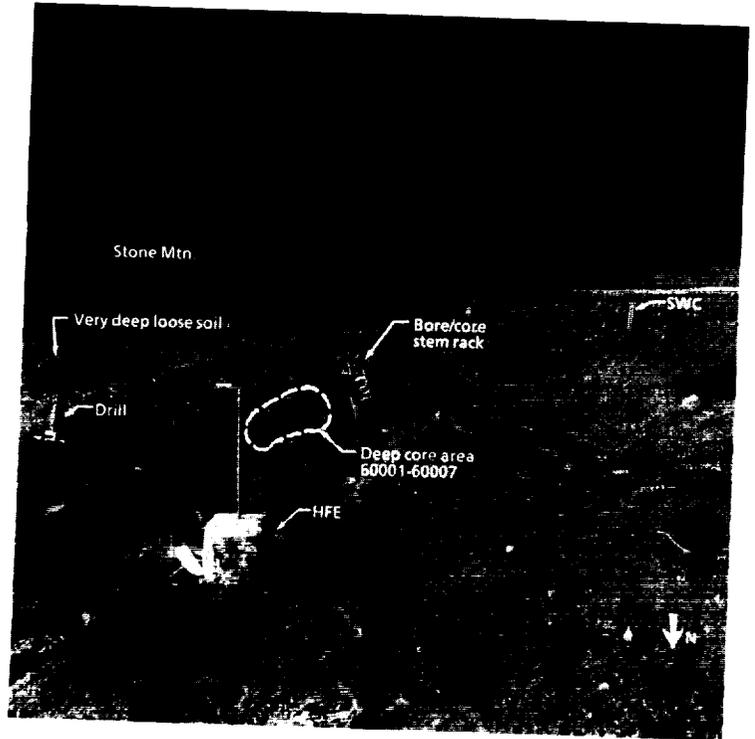


Apollo 16 sample collection sites  
from the Handbook of Lunar Soils.

60001-60007 Sample  
Environment

AS16-113-18367

Post-sampling.



60001-60007 Sample  
Environment

S-72-35617

TV documentation, taken  
during sampling.

# Soil: 60006

(Subsample 60006,205) (Core: depth below surface, 52.5 - 53.2 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core containing samples 60001-60007 was drilled at the ALSEP site about 175 m southwest of the LM and 25 m south of the ALSEP central station. The sample area is generally flat with blocks up to 10-15 cm abundant. Deep drill area has the least compacted soil and the highest density of craters in the area. Core stems went easily into the surface.

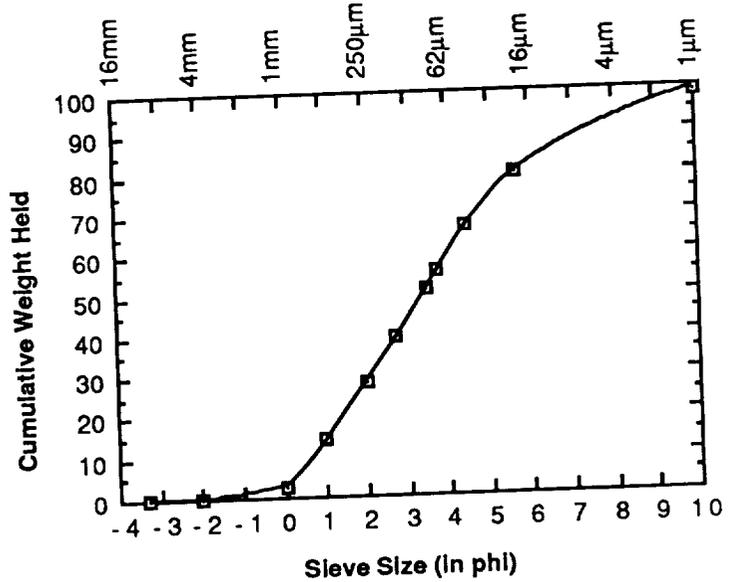
## MATURITY INDEX:

$I_p/FeO = 68$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
1000.00	2.67
500.00	11.41
250.00	14.11
150.00	10.78
90.00	12.22
75.00	4.09
45.00	11.55
20.00	12.99
1.00	19.18

### CUMULATIVE WEIGHT DISTRIBUTION CURVE



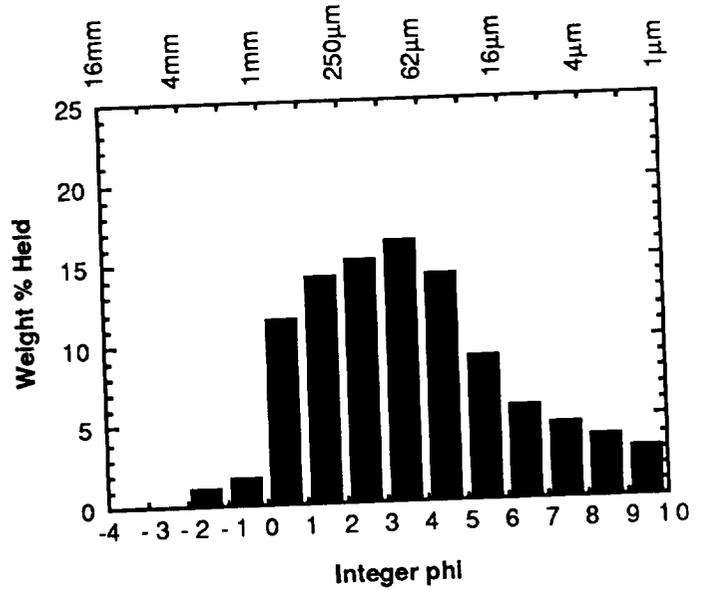
## GRAPHIC AND MOMENT MEASURES

Mean:	3.62
Median:	3.40
Mode:	3.50
Sorting:	2.59
Skewness:	0.20
Kurtosis:	1.04

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.27
16	1.14
25	1.78
50	3.40
75	5.13
84	6.32
95	8.80

### SIZE DISTRIBUTION HISTOGRAM



**Soil: 60006**  
 (Subsample 60006,202) (Core: depth below surface, 46.0 - 46.5 cm)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Deep core containing samples 60001-60007 was drilled at the ALSEP site about 175 m southwest of the LM and 25 m south of the ALSEP central station. The sample area is generally flat with blocks up to 10-15 cm abundant. Deep drill area has the least compacted soil and the highest density of craters in the area. Core stems went easily into the surface.

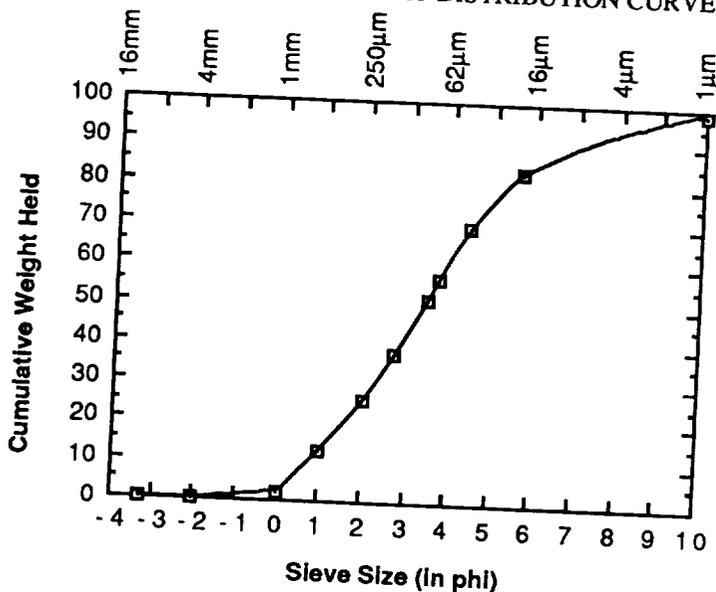
**MATURITY INDEX:**

$I_s/FeO = 68$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
1000.00	1.98
500.00	10.60
250.00	12.80
150.00	11.61
90.00	13.68
75.00	5.68
45.00	12.76
20.00	13.67
1.00	16.21

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



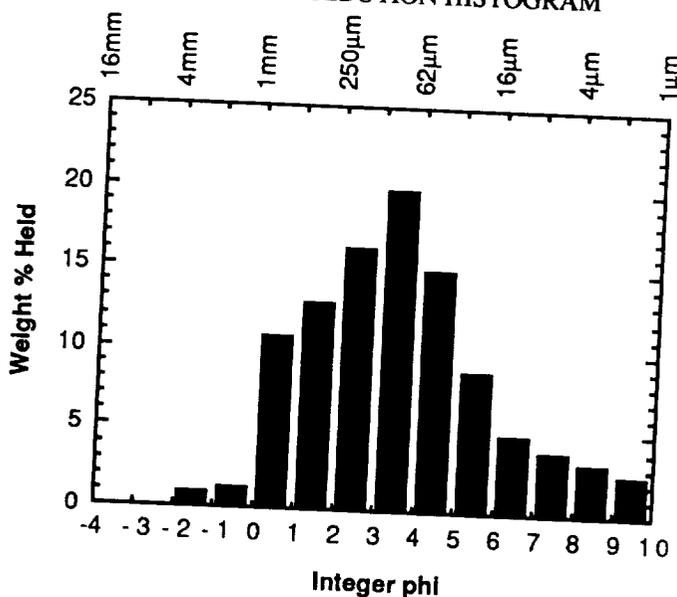
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.53
Median:	3.44
Mode:	3.50
Sorting:	2.39
Skewness:	0.15
Kurtosis:	1.16

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.34
16	1.29
25	1.97
50	3.44
75	4.90
84	5.85
95	8.59

**SIZE DISTRIBUTION HISTOGRAM**



# Soil: 60006

(Subsample 60006,193) (Core: depth below surface, 35.0 - 35.5 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core containing samples 60001-60007 was drilled at the ALSEP site about 175 m southwest of the LM and 25 m south of the ALSEP central station. The sample area is generally flat with blocks up to 10-15 cm abundant. Deep drill area has the least compacted soil and the highest density of craters in the area. Core stems went easily into the surface.

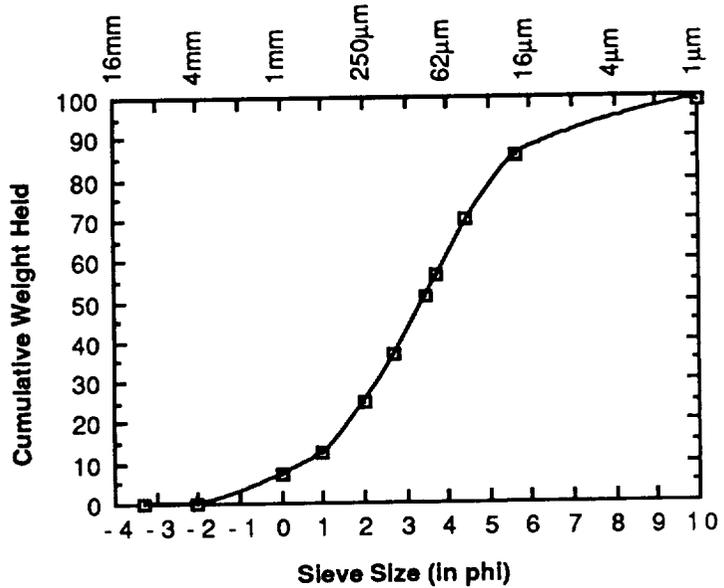
## MATURITY INDEX:

$I_s/FeO = 75$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
1000.00	6.97
500.00	5.58
250.00	12.31
150.00	11.99
90.00	14.06
75.00	5.21
45.00	13.80
20.00	15.91
1.00	13.18

CUMULATIVE WEIGHT DISTRIBUTION CURVE



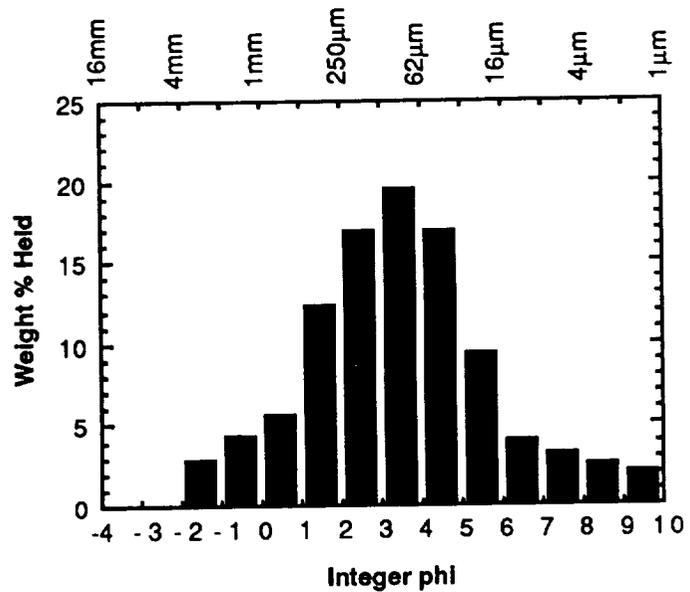
## GRAPHIC AND MOMENT MEASURES

Mean:	3.40
Median:	3.43
Mode:	3.50
Sorting:	2.35
Skewness:	0.05
Kurtosis:	1.29

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-0.45
16	1.34
25	2.01
50	3.43
75	4.80
84	5.42
95	8.32

SIZE DISTRIBUTION HISTOGRAM



# Soil: 60006

(Subsample 60006,185) (Core: depth below surface, 25.5 - 26.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core containing samples 60001-60007 was drilled at the ALSEP site about 175 m southwest of the LM and 25 m south of the ALSEP central station. The sample area is generally flat with blocks up to 10-15 cm abundant. Deep drill area has the least compacted soil and the highest density of craters in the area. Core stems went easily into the surface.

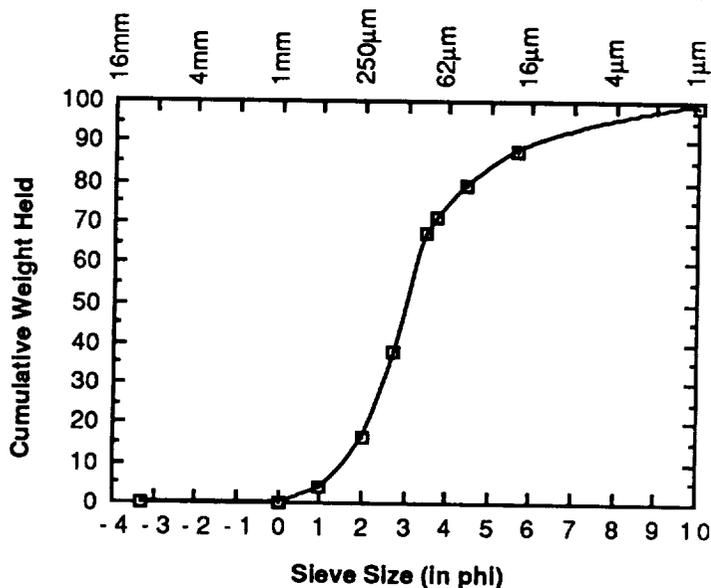
## MATURITY INDEX:

$I_s/FeO = 81$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	3.89
250.00	12.70
150.00	21.08
90.00	29.95
75.00	3.49
45.00	8.23
20.00	8.40
1.00	11.27

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



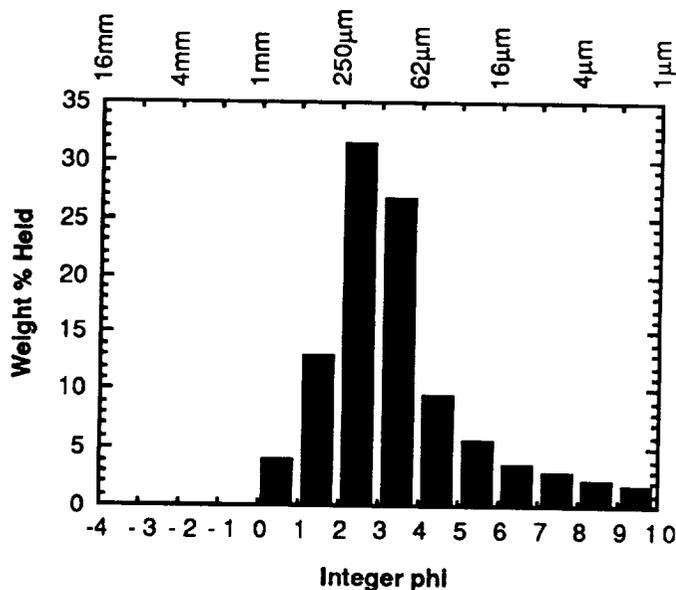
## GRAPHIC AND MOMENT MEASURES

Mean:	3.35
Median:	3.05
Mode:	2.50
Sorting:	1.81
Skewness:	0.37
Kurtosis:	1.64

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.17
16	1.96
25	2.34
50	3.05
75	4.06
84	5.03
95	8.05

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 60006

(Subsample 60006,184) (Core: depth below surface, 23.2 - 24.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core containing samples 60001-60007 was drilled at the ALSEP site about 175 m southwest of the LM and 25 m south of the ALSEP central station. The sample area is generally flat with blocks up to 10-15 cm abundant. Deep drill area has the least compacted soil and the highest density of craters in the area. Core stems went easily into the surface.

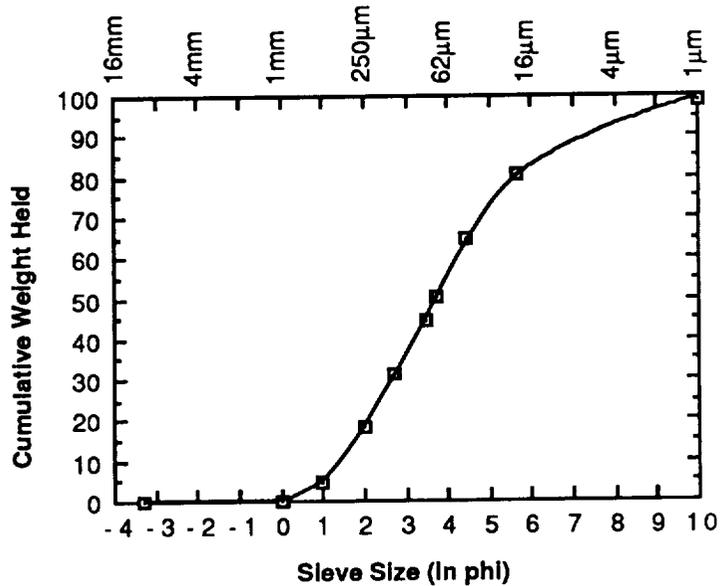
## MATURITY INDEX:

$I_g/FeO = 81$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	4.88
250.00	13.59
150.00	12.75
90.00	13.13
75.00	6.02
45.00	14.01
20.00	15.73
1.00	18.89

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



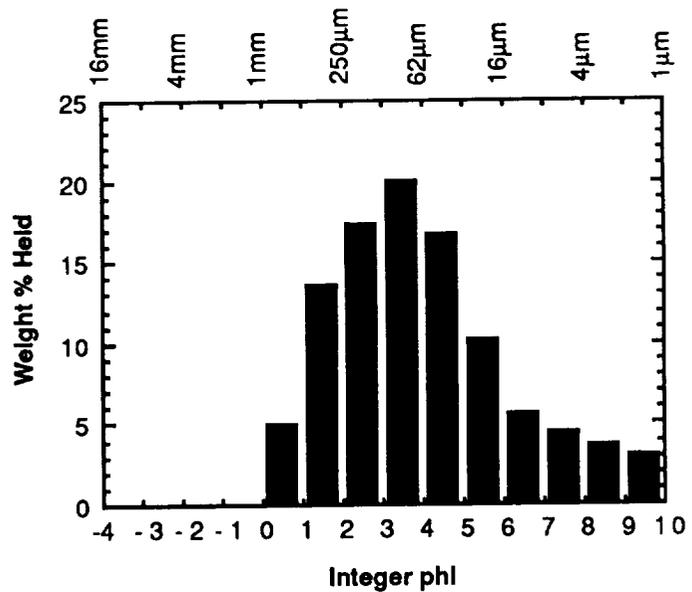
## GRAPHIC AND MOMENT MEASURES

Mean:	3.94
Median:	3.72
Mode:	3.50
Sorting:	2.28
Skewness:	0.23
Kurtosis:	1.14

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.02
16	1.84
25	2.38
50	3.72
75	5.17
84	6.27
95	8.78

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 60007

(Subsample 60007,206) (Core: depth below surface, 20.0 - 20.5 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core containing samples 60001-60007 was drilled at the ALSEP site about 175 m southwest of the LM and 25 m south of the ALSEP central station. The sample area is generally flat with blocks up to 10-15 cm abundant. Deep drill area has the least compacted soil and the highest density of craters in the area. Core stems went easily into the surface.

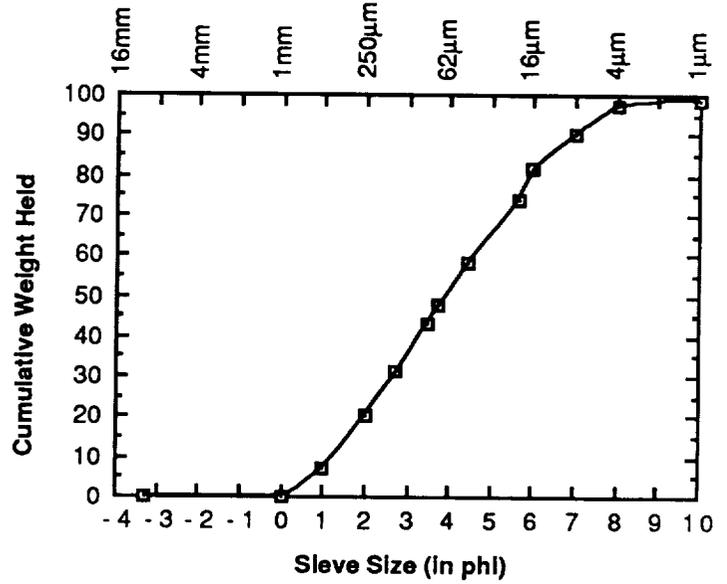
## MATURITY INDEX:

$I_s/FeO = 75$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	7.48
250.00	12.91
150.00	10.84
90.00	12.20
75.00	4.10
45.00	10.93
20.00	15.61
15.60	7.70
7.80	8.41
3.90	7.00
1.00	1.81

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



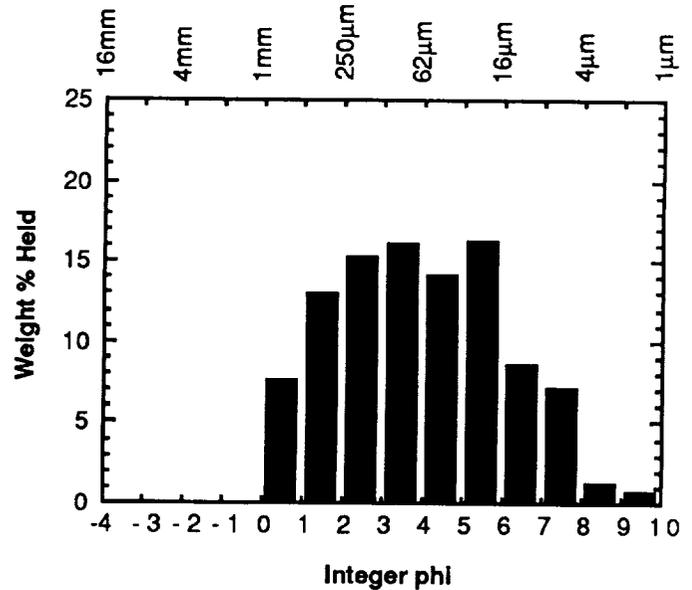
## GRAPHIC AND MOMENT MEASURES

Mean:	3.93
Median:	3.90
Mode:	5.50
Sorting:	2.18
Skewness:	0.05
Kurtosis:	0.84

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.72
16	1.68
25	2.32
50	3.90
75	5.69
84	6.23
95	7.64

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 60007

(Subsample 60007,217) (Core: depth below surface, 16.0 - 16.5 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core containing samples 60001-60007 was drilled at the ALSEP site about 175 m southwest of the LM and 25 m south of the ALSEP central station. The sample area is generally flat with blocks up to 10-15 cm abundant. Deep drill area has the least compacted soil and the highest density of craters in the area. Core stems went easily into the surface.

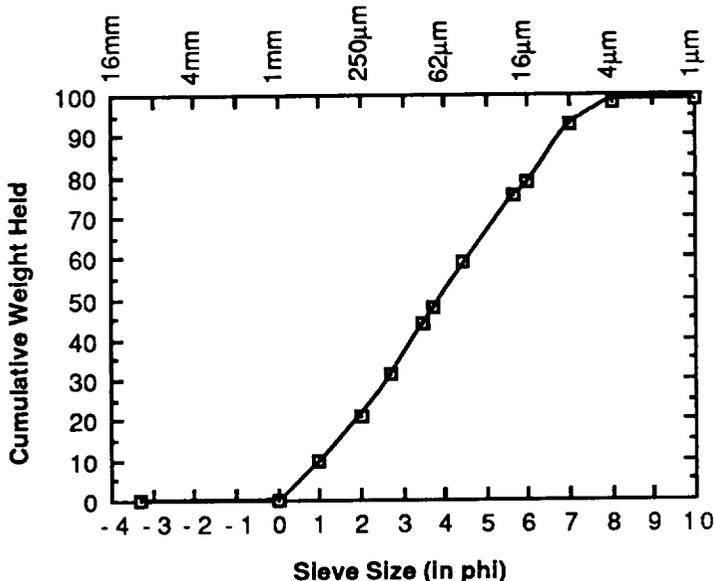
## MATURITY INDEX:

$I_s/FeO = 75$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	9.73
250.00	11.46
150.00	10.36
90.00	12.24
75.00	3.84
45.00	11.14
20.00	16.20
15.60	3.59
7.80	14.41
3.90	5.37
1.00	0.67

CUMULATIVE WEIGHT DISTRIBUTION CURVE



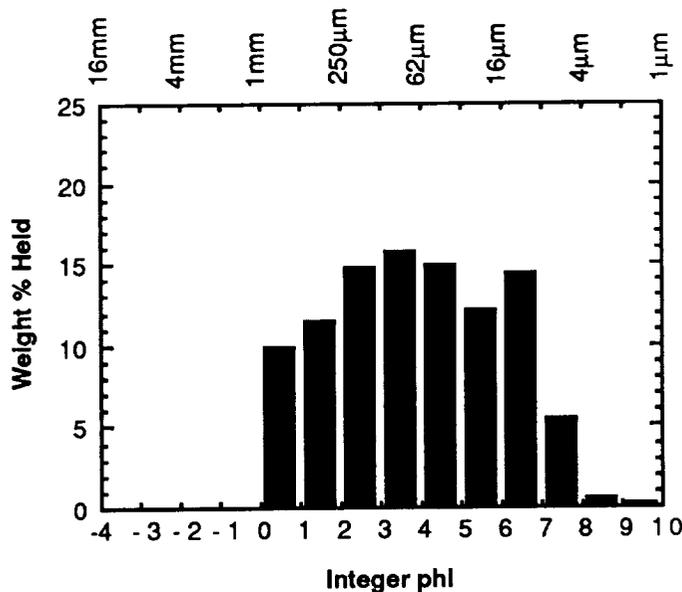
## GRAPHIC AND MOMENT MEASURES

Mean:	3.96
Median:	3.90
Mode:	3.50
Sorting:	2.23
Skewness:	0.02
Kurtosis:	0.83

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.55
16	1.57
25	2.29
50	3.90
75	5.65
84	6.41
95	7.32

SIZE DISTRIBUTION HISTOGRAM



# Soil: 60007

(Subsample 60007,221) (Core: depth below surface, 14.5 - 15.0 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Deep core containing samples 60001-60007 was drilled at the ALSEP site about 175 m southwest of the LM and 25 m south of the ALSEP central station. The sample area is generally flat with blocks up to 10-15 cm abundant. Deep drill area has the least compacted soil and the highest density of craters in the area. Core stems went easily into the surface.

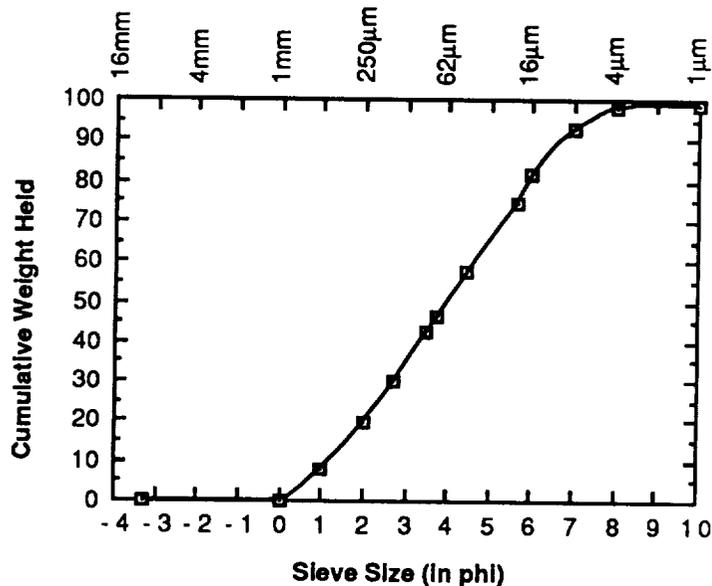
## MATURITY INDEX:

$I_g/FeO = 116$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	7.95
250.00	11.89
150.00	10.41
90.00	12.09
75.00	3.99
45.00	11.30
20.00	17.12
15.60	7.23
7.80	10.89
3.90	5.19
1.00	0.95

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



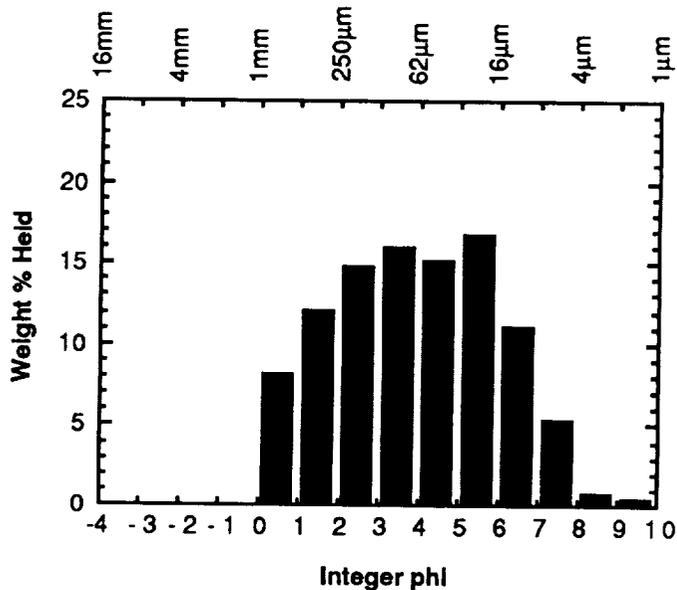
## GRAPHIC AND MOMENT MEASURES

Mean:	3.94
Median:	3.98
Mode:	5.50
Sorting:	2.12
Skewness:	-0.01
Kurtosis:	0.83

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.68
16	1.70
25	2.38
50	3.98
75	5.66
84	6.14
95	7.35

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 60007

(Subsample 60007,222) (Core: depth below surface, 12.5 - 13.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core containing samples 60001-60007 was drilled at the ALSEP site about 175 m southwest of the LM and 25 m south of the ALSEP central station. The sample area is generally flat with blocks up to 10-15 cm abundant. Deep drill area has the least compacted soil and the highest density of craters in the area. Core stems went easily into the surface.

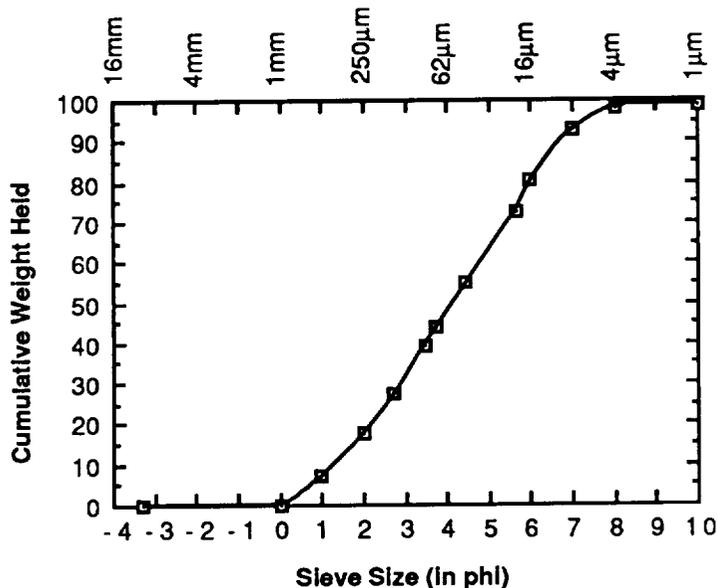
## MATURITY INDEX:

$I_g/FeO = 82$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	6.99
250.00	10.62
150.00	9.64
90.00	12.29
75.00	3.95
45.00	11.57
20.00	17.75
15.60	7.56
7.80	12.44
3.90	5.40
1.00	0.78

CUMULATIVE WEIGHT DISTRIBUTION CURVE



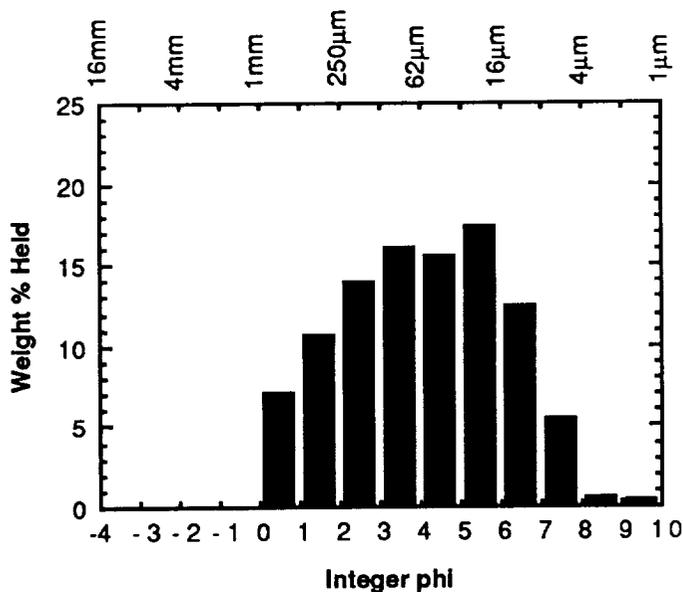
## GRAPHIC AND MOMENT MEASURES

Mean:	4.08
Median:	4.15
Mode:	5.50
Sorting:	2.09
Skewness:	-0.04
Kurtosis:	0.85

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.75
16	1.86
25	2.58
50	4.15
75	5.75
84	6.23
95	7.34

SIZE DISTRIBUTION HISTOGRAM



# Soil: 60007

(Subsample 60007,232) (Core: depth below surface, 7.5 - 8.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core containing samples 60001-60007 was drilled at the ALSEP site about 175 m southwest of the LM and 25 m south of the ALSEP central station. The sample area is generally flat with blocks up to 10-15 cm abundant. Deep drill area has the least compacted soil and the highest density of craters in the area. Core stems went easily into the surface.

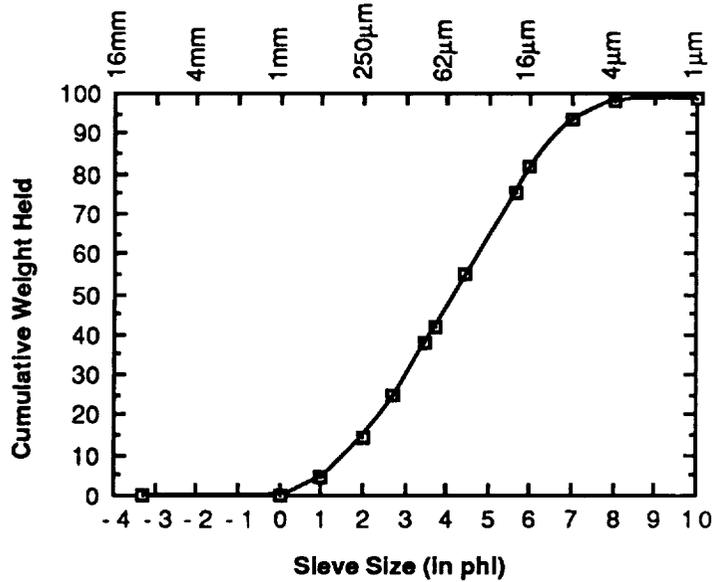
## MATURITY INDEX:

$I_s/FeO = 87$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	4.69
250.00	10.00
150.00	10.24
90.00	12.83
75.00	4.21
45.00	12.74
20.00	20.57
15.60	6.71
7.80	11.40
3.90	4.69
1.00	0.92

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



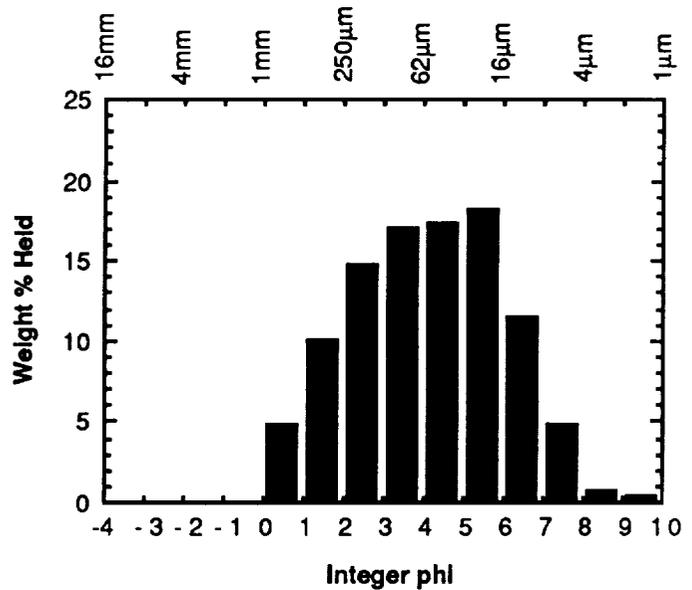
## GRAPHIC AND MOMENT MEASURES

Mean:	4.15
Median:	4.20
Mode:	5.50
Sorting:	1.95
Skewness:	-0.03
Kurtosis:	0.89

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.05
16	2.11
25	2.74
50	4.20
75	5.63
84	6.14
95	7.29

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 60007

(Subsample 60007,243) (Core: depth below surface, 1.5 - 2.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

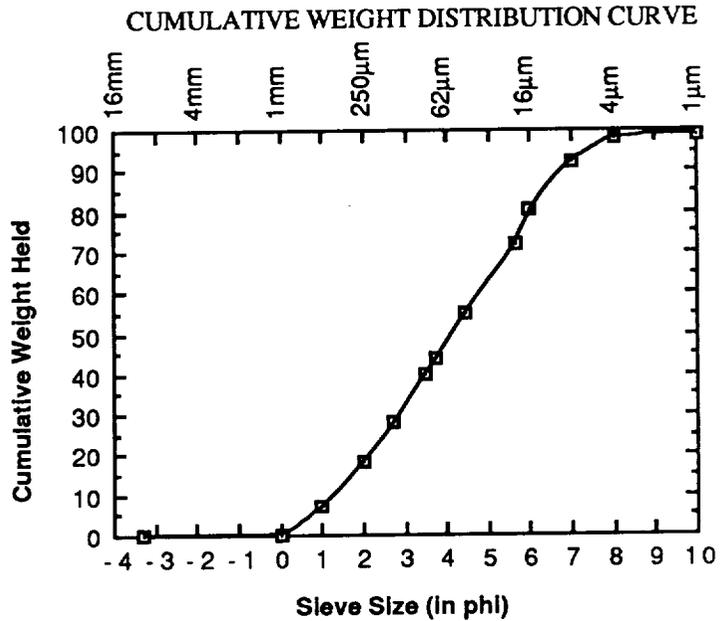
Deep core containing samples 60001-60007 was drilled at the ALSEP site about 175 m southwest of the LM and 25 m south of the ALSEP central station. The sample area is generally flat with blocks up to 10-15 cm abundant. Deep drill area has the least compacted soil and the highest density of craters in the area. Core stems went easily into the surface.

## MATURITY INDEX:

$I_s/FeO = 86$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	7.03
250.00	11.02
150.00	9.92
90.00	11.71
75.00	3.90
45.00	11.54
20.00	16.69
15.60	8.33
7.80	12.15
3.90	5.43
1.00	1.28

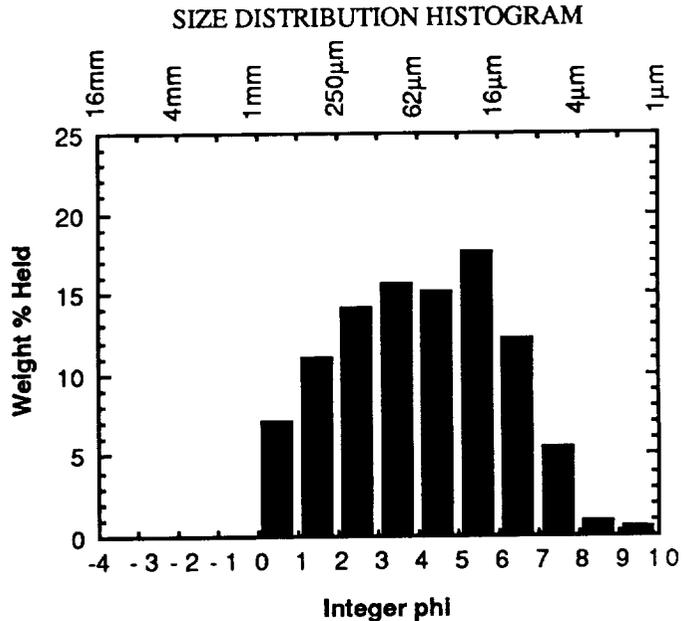


## GRAPHIC AND MOMENT MEASURES

Mean:	4.07
Median:	4.15
Mode:	5.50
Sorting:	2.11
Skewness:	-0.03
Kurtosis:	0.84

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.75
16	1.83
25	2.53
50	4.15
75	5.79
84	6.24
95	7.42



# Soil: 60007

(Subsample 60007,248) (Core: depth below surface, 0.0 - 0.5 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Deep core containing samples 60001-60007 was drilled at the ALSEP site about 175 m southwest of the LM and 25 m south of the ALSEP central station. The sample area is generally flat with blocks up to 10-15 cm abundant. Deep drill area has the least compacted soil and the highest density of craters in the area. Core stems went easily into the surface.

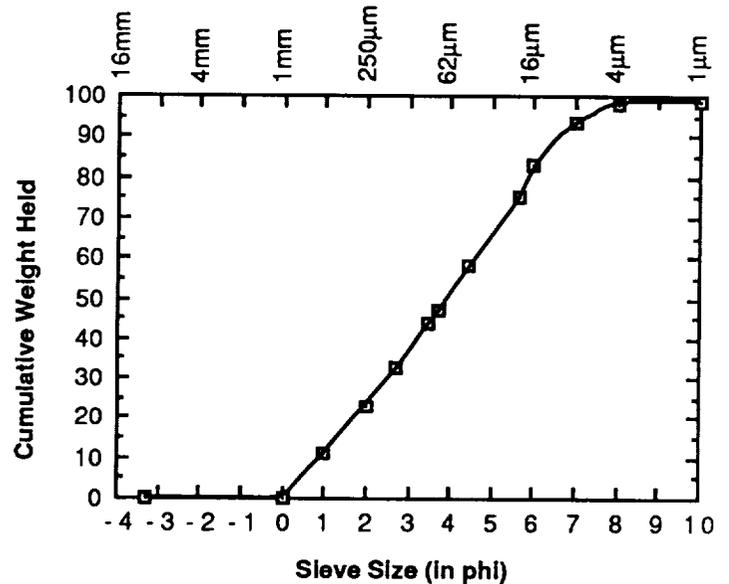
## MATURITY INDEX:

$I_2/FeO = 86$  (mature)

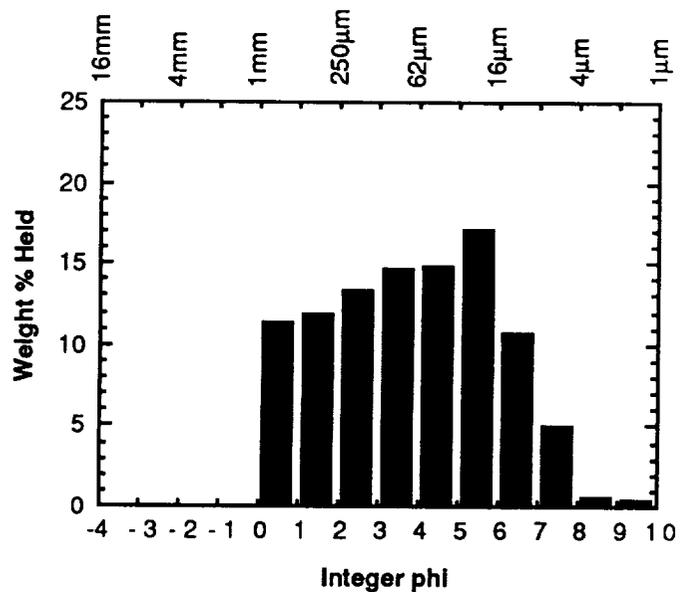
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	11.34
250.00	11.80
150.00	9.36
90.00	11.16
75.00	3.37
45.00	10.98
20.00	16.98
15.60	7.75
7.80	10.54
3.90	4.95
1.00	0.77

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	3.81
Median:	3.94
Mode:	5.50
Sorting:	2.21
Skewness:	-0.05
Kurtosis:	0.80

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.45
16	1.40
25	2.15
50	3.94
75	5.64
84	6.09
95	7.29

# Soil: 60009

(Subsample 60009,458) (Core: depth below surface, 58.3 - 58.8 cm)  
D.S. McKay PI

**LOCATION COMMENTS:**

Drive Tube 60009/60010 was taken at Station 10 about 100 meters southwest of the LM. Samples were taken from the rim of a subdued 60 cm crater. Fragments on the surface are mostly pear sized; none are larger than a few cm. Grain sizes >1mm may have been handled less so friable fragments would be less likely to break apart.

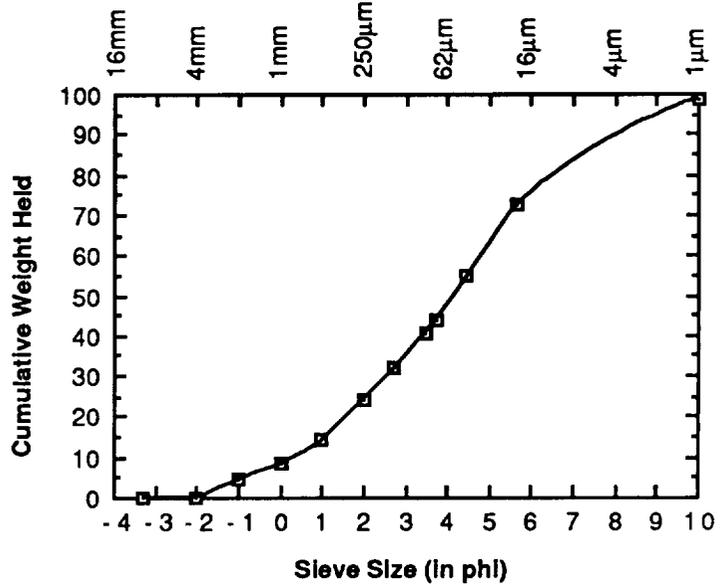
**MATURITY INDEX:**

$I_g/FeO = 49$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	4.39
1000.00	3.84
500.00	5.83
250.00	10.05
150.00	7.79
90.00	8.90
75.00	3.27
45.00	10.80
20.00	17.77
1.00	26.36

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



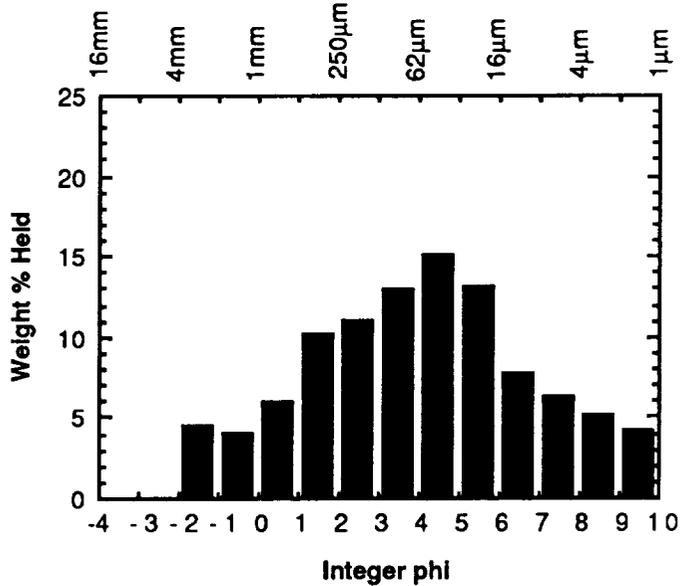
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.16
Median:	4.15
Mode:	4.50
Sorting:	2.99
Skewness:	0.00
Kurtosis:	1.07

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.85
16	1.21
25	2.09
50	4.15
75	5.90
84	7.12
95	9.11

**SIZE DISTRIBUTION HISTOGRAM**



# Soil: 60009

(Subsample 60009,457) (Core: depth below surface, 53.3 - 53.8 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive Tube 60009/60010 was taken at Station 10 about 100 meters southwest of the LM. Samples were taken from the rim of a subdued 60 cm crater. Fragments on the surface are mostly pear sized; none are larger than a few cm. Grain sizes >1mm may have been handled less so friable fragments would be less likely to break apart.

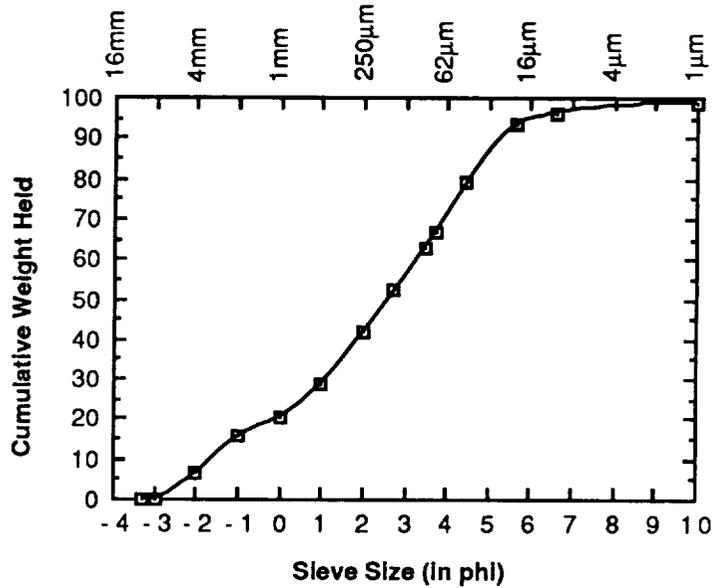
## MATURITY INDEX:

$I_s/FeO = 39$  (dark unit) 26 (light unit)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
8000.00	0.00
4000.00	6.54
2000.00	9.20
1000.00	4.66
500.00	8.63
250.00	12.66
150.00	10.30
90.00	11.05
75.00	3.79
45.00	12.38
20.00	14.51
10.00	2.65
1.00	2.61

CUMULATIVE WEIGHT DISTRIBUTION CURVE



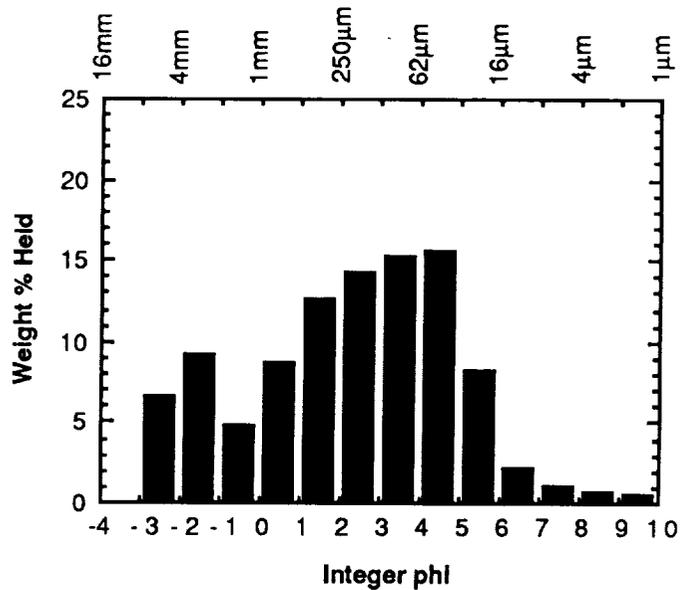
## GRAPHIC AND MOMENT MEASURES

Mean:	2.15
Median:	2.60
Mode:	4.50
Sorting:	2.69
Skewness:	-0.20
Kurtosis:	0.93

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.21
16	-0.95
25	0.58
50	2.60
75	4.21
84	4.81
95	6.07

SIZE DISTRIBUTION HISTOGRAM



# Soil: 60009

(Subsample 60009,456) (Core: depth below surface, 48.4 - 49.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

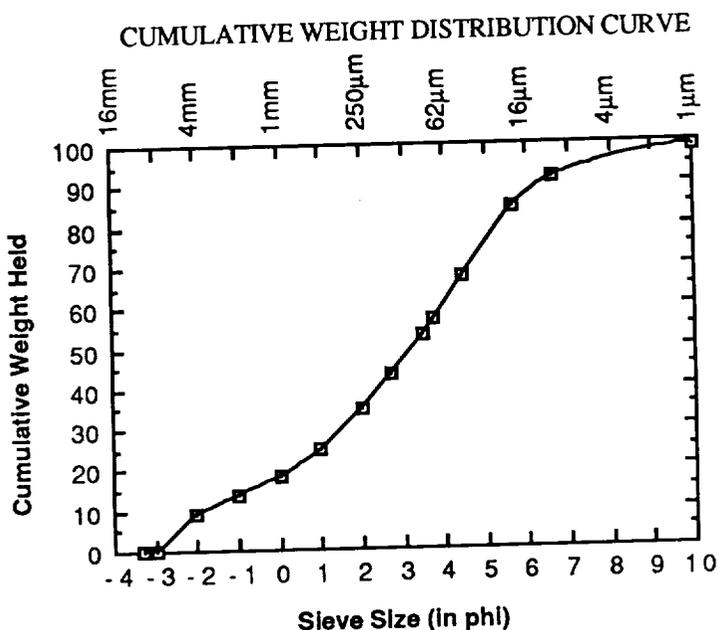
Drive Tube 60009/60010 was taken at Station 10 about 100 meters southwest of the LM. Samples were taken from the rim of a subdued 60 cm crater. Fragments on the surface are mostly pear sized; none are larger than a few cm. Grain sizes >1mm may have been handled less so friable fragments would be less likely to break apart.

## MATURITY INDEX:

$I_s/FeO = 44$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
8000.00	0.00
4000.00	9.12
2000.00	4.53
1000.00	4.48
500.00	6.74
250.00	9.80
150.00	8.78
90.00	9.52
75.00	3.71
45.00	10.90
20.00	16.76
10.00	7.21
1.00	7.44

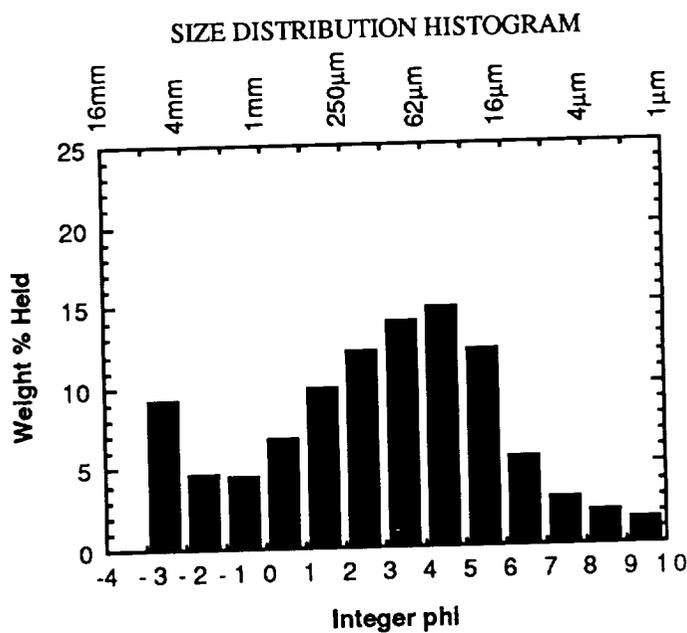


## GRAPHIC AND MOMENT MEASURES

Mean:	2.80
Median:	3.25
Mode:	4.50
Sorting:	3.09
Skewness:	-0.17
Kurtosis:	1.07

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.48
16	-0.48
25	1.02
50	3.25
75	4.98
84	5.61
95	7.87



# Soil: 60009

(Subsample 60009,455) (Core: depth below surface, 42.8 - 43.3 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive Tube 60009/60010 was taken at Station 10 about 100 meters southwest of the LM. Samples were taken from the rim of a subdued 60 cm crater. Fragments on the surface are mostly pear sized; none are larger than a few cm. Grain sizes >1mm may have been handled less so friable fragments would be less likely to break apart.

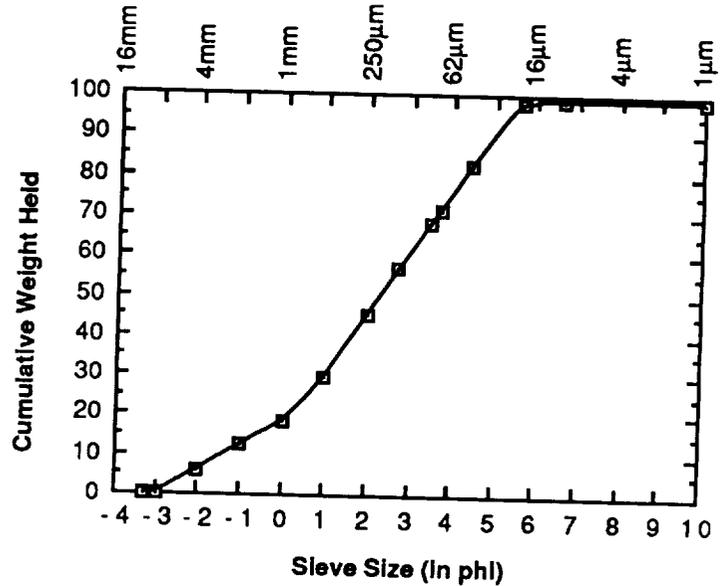
## MATURITY INDEX:

$I_s/FeO = 41$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
8000.00	0.00
4000.00	6.07
2000.00	6.18
1000.00	6.04
500.00	11.44
250.00	15.31
150.00	11.50
90.00	11.25
75.00	3.55
45.00	11.32
20.00	15.58
10.00	0.29
1.00	0.48

CUMULATIVE WEIGHT DISTRIBUTION CURVE



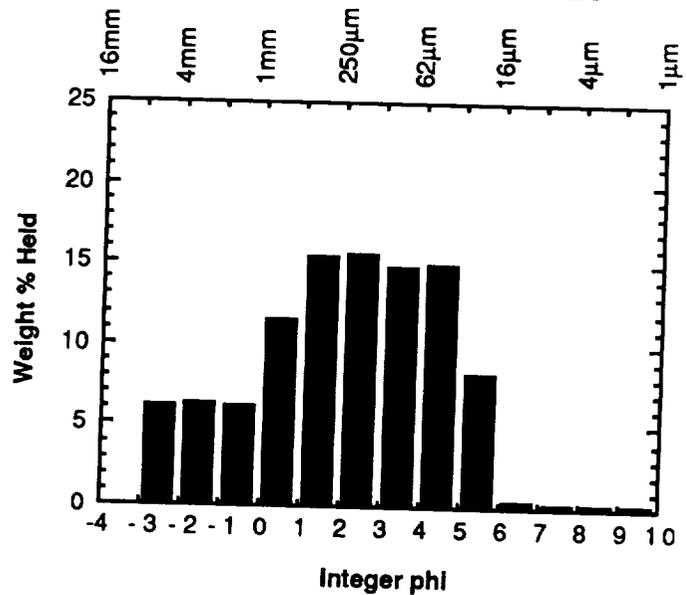
## GRAPHIC AND MOMENT MEASURES

Mean:	2.17
Median:	2.32
Mode:	2.50
Sorting:	2.37
Skewness:	-0.14
Kurtosis:	0.92

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.17
16	-0.38
25	0.63
50	2.32
75	3.98
84	4.57
95	5.33

SIZE DISTRIBUTION HISTOGRAM



# Soil: 60009

(Subsample 60009,454) (Core: depth below surface, 28.8 - 29.3 cm)

D.S. McKay PI

## LOCATION COMMENTS:

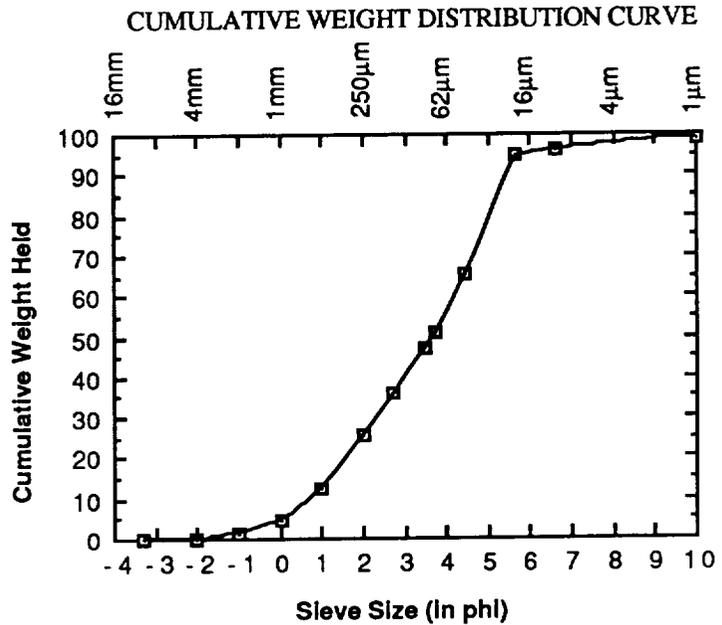
Drive Tube 60009/60010 was taken at Station 10 about 100 meters southwest of the LM. Samples were taken from the rim of a subdued 60 cm crater. Fragments on the surface are mostly pear sized; none are larger than a few cm. Grain sizes >1mm may have been handled less so friable fragments would be less likely to break apart.

## MATURITY INDEX:

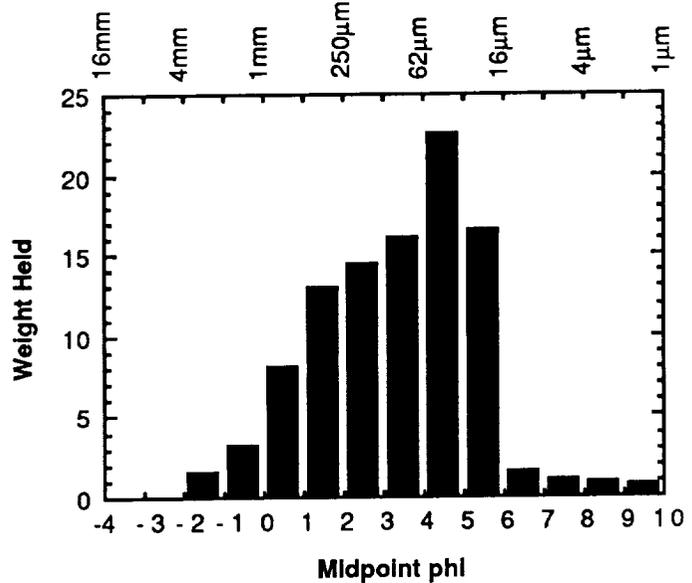
$I_g/FeO = 47$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	1.53
1000.00	3.08
500.00	8.00
250.00	12.83
150.00	10.35
90.00	11.27
75.00	3.96
45.00	14.63
20.00	28.79
10.00	1.52
1.00	3.03



## SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	3.38
Median:	3.67
Mode:	4.50
Sorting:	1.87
Skewness:	-0.22
Kurtosis:	0.83

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.09
16	1.29
25	1.97
50	3.67
75	4.87
84	5.19
95	5.99

# Soil: 60010

(Subsample 60010,3107) (Core: depth below surface, 20.0 - 20.5 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive Tube 60009/60010 was taken at Station 10 about 100 meters southwest of the LM. Samples were taken from the rim of a subdued 60 cm crater. Fragments on the surface are mostly pear sized; none are larger than a few cm. Grain sizes >1mm may have been handled less so friable fragments would be less likely to break apart.

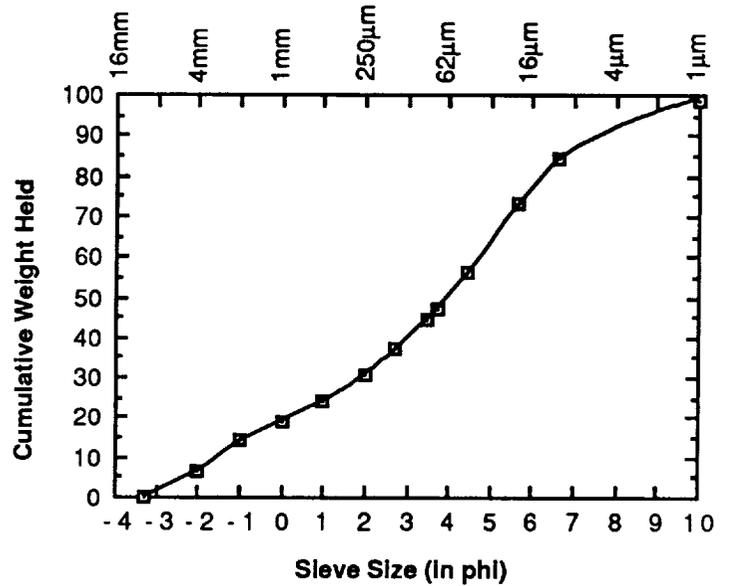
## MATURITY INDEX:

$I_g/FeO = 47$  (submature)

## TABULATED SIEVE DATA

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	6.67
2000.00	7.48
1000.00	4.96
500.00	5.04
250.00	6.69
150.00	6.27
90.00	7.32
75.00	2.78
45.00	9.10
20.00	16.57
10.00	11.59
1.00	14.52

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



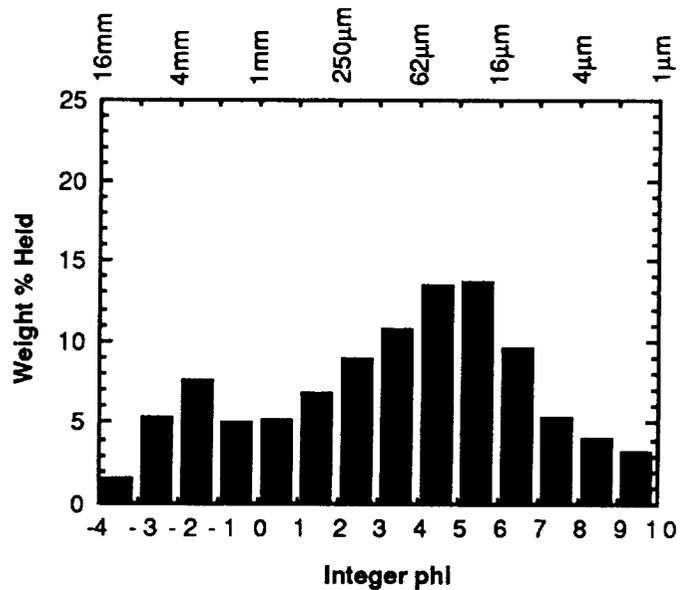
## GRAPHIC AND MOMENT MEASURES

Mean:	3.31
Median:	3.98
Mode:	5.50
Sorting:	3.49
Skewness:	-0.20
Kurtosis:	0.98

## MOMENT MEASURE DATA

Wt % held	Ø size
5	-2.29
16	-0.63
25	1.15
50	3.98
75	5.81
84	6.58
95	8.82

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 60010

(Subsample 60010,1073) (Core: depth below surface, 24.5 - 25.0 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive Tube 60009/60010 was taken at Station 10 about 100 meters southwest of the LM. Samples were taken from the rim of a subdued 60 cm crater. Fragments on the surface are mostly pear sized; none are larger than a few cm. Grain sizes >1mm may have been handled less so friable fragments would be less likely to break apart.

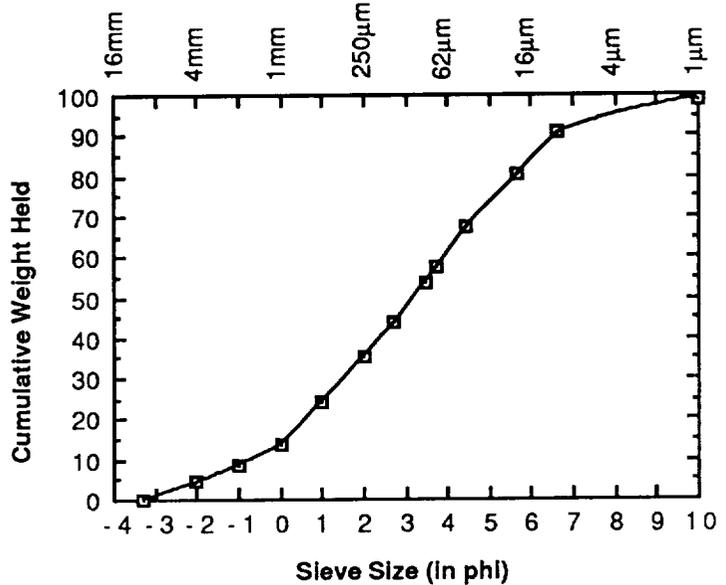
## MATURITY INDEX:

$I_s/FeO = 46$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	4.35
2000.00	4.30
1000.00	5.17
500.00	10.68
250.00	10.97
150.00	8.46
90.00	9.90
75.00	3.44
45.00	10.15
20.00	12.74
10.00	10.40
1.00	8.44

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



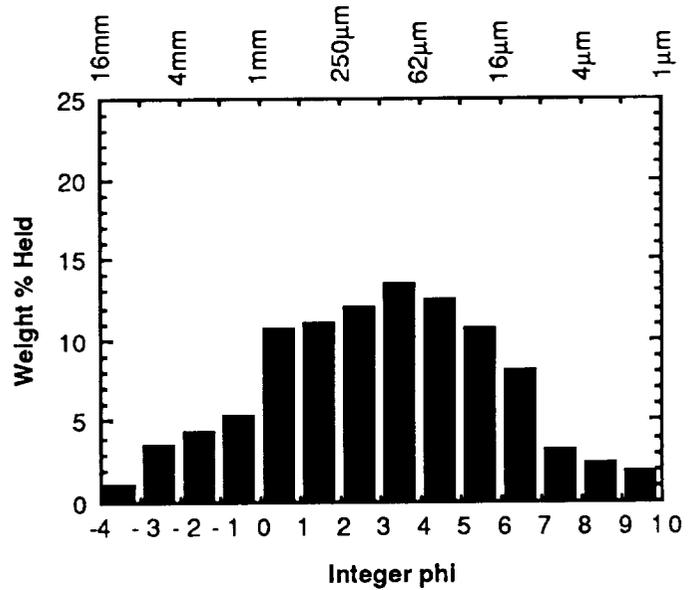
## GRAPHIC AND MOMENT MEASURES

Mean:	3.14
Median:	3.19
Mode:	3.50
Sorting:	2.95
Skewness:	-0.02
Kurtosis:	0.99

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-1.83
16	0.21
25	1.05
50	3.19
75	5.16
84	6.01
95	8.09

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 60010

(Subsample 60010,1074) (Core: depth below surface, 14.0 - 14.5 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Drive Tube 60009/60010 was taken at Station 10 about 100 meters southwest of the LM. Samples were taken from the rim of a subdued 60 cm crater. Fragments on the surface are mostly pear sized; none are larger than a few cm. Grain sizes >1mm may have been handled less so friable fragments would be less likely to break apart.

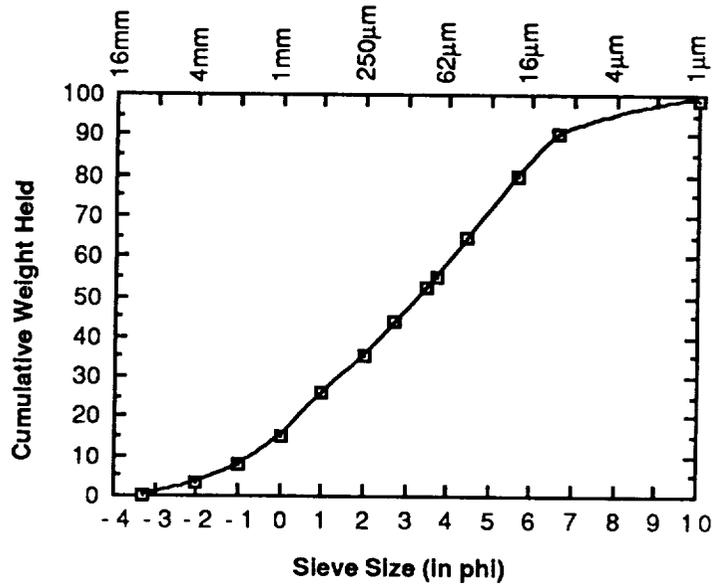
## MATURITY INDEX:

$I_s/FeO = 62$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	3.31
2000.00	4.64
1000.00	7.37
500.00	10.60
250.00	9.69
150.00	7.87
90.00	8.55
75.00	2.94
45.00	9.46
20.00	15.27
10.00	10.45
1.00	8.83

CUMULATIVE WEIGHT DISTRIBUTION CURVE



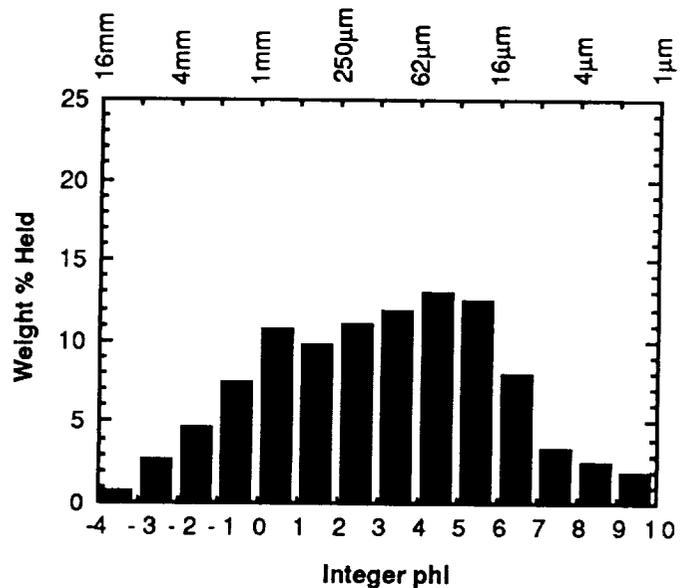
## GRAPHIC AND MOMENT MEASURES

Mean:	3.13
Median:	3.30
Mode:	4.50
Sorting:	2.96
Skewness:	-0.04
Kurtosis:	0.91

## MOMENT MEASURE DATA

Wt % held	$\emptyset$ size
5	-1.57
16	0.07
25	0.91
50	3.30
75	5.28
84	6.02
95	8.16

SIZE DISTRIBUTION HISTOGRAM



# Soil: 60010

(Subsample 60010,1075) (Core: depth below surface, 11.0 - 11.5 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive Tube 60009/60010 was taken at Station 10 about 100 meters southwest of the LM. Samples were taken from the rim of a subdued 60 cm crater. Fragments on the surface are mostly pear sized; none are larger than a few cm. Grain sizes >1mm may have been handled less so friable fragments would be less likely to break apart.

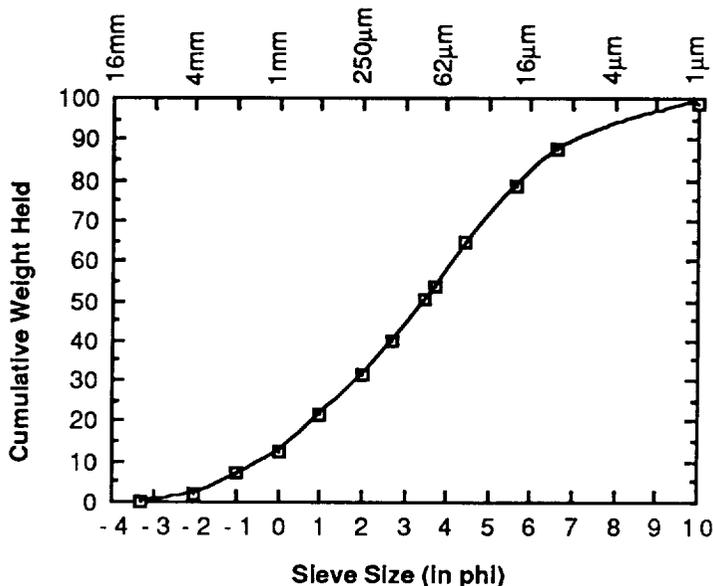
## MATURITY INDEX:

$I_g/FeO = 70$  (mature)

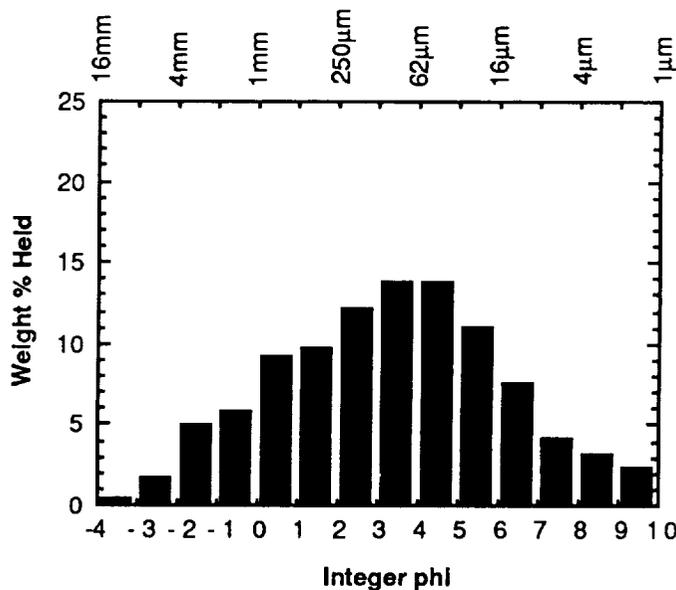
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.03
2000.00	4.85
1000.00	5.79
500.00	9.17
250.00	9.70
150.00	8.60
90.00	10.01
75.00	3.46
45.00	10.81
20.00	14.06
10.00	9.31
1.00	11.21

CUMULATIVE WEIGHT DISTRIBUTION CURVE



SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	3.34
Median:	3.46
Mode:	4.50
Sorting:	2.95
Skewness:	-0.02
Kurtosis:	1.01

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-1.36
16	0.38
25	1.33
50	3.46
75	5.32
84	6.19
95	8.51

# Soil: 60010

(Subsample 60010,1076) (Core: depth below surface, 3.5 - 4.0 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive Tube 60009/60010 was taken at Station 10 about 100 meters southwest of the LM. Samples were taken from the rim of a subdued 60 cm crater. Fragments on the surface are mostly pear sized; none are larger than a few cm. Grain sizes >1mm may have been handled less so friable fragments would be less likely to break apart.

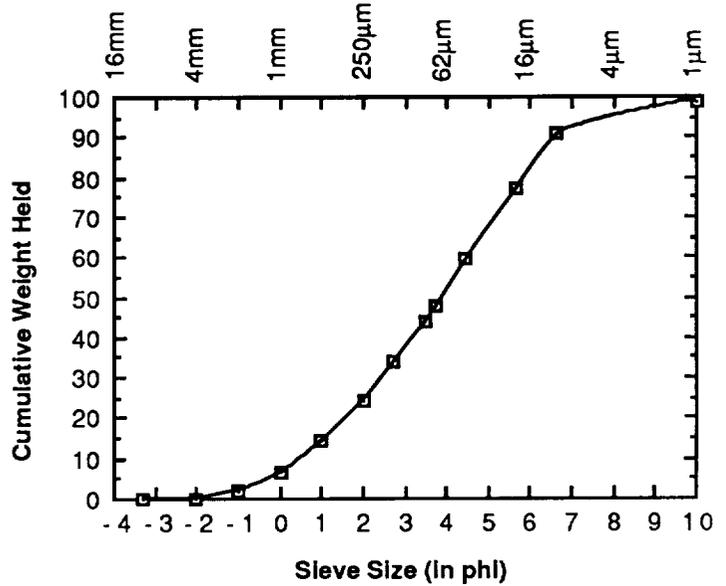
## MATURITY INDEX:

$I_s/FcO = 71$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	1.98
1000.00	4.30
500.00	8.15
250.00	10.02
150.00	9.40
90.00	9.94
75.00	4.01
45.00	11.91
20.00	17.23
10.00	14.10
1.00	7.97

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



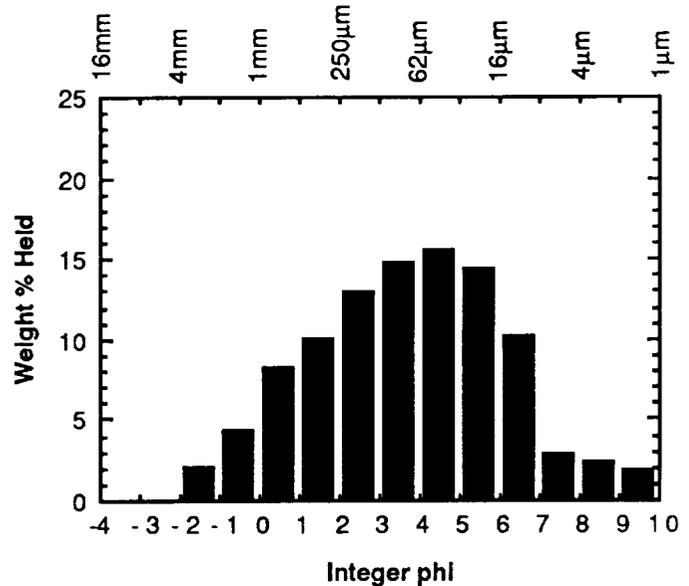
## GRAPHIC AND MOMENT MEASURES

Mean:	3.73
Median:	3.88
Mode:	4.50
Sorting:	2.49
Skewness:	-0.04
Kurtosis:	0.98

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-0.25
16	1.17
25	2.05
50	3.88
75	5.51
84	6.14
95	8.02

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 60010

(Subsample 60010,1077) (Core: depth below surface, 0.5 - 1.0 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive Tube 60009/60010 was taken at Station 10 about 100 meters southwest of the LM. Samples were taken from the rim of a subdued 60 cm crater. Fragments on the surface are mostly pear sized; none are larger than a few cm. Grain sizes >1mm may have been handled less so friable fragments would be less likely to break apart.

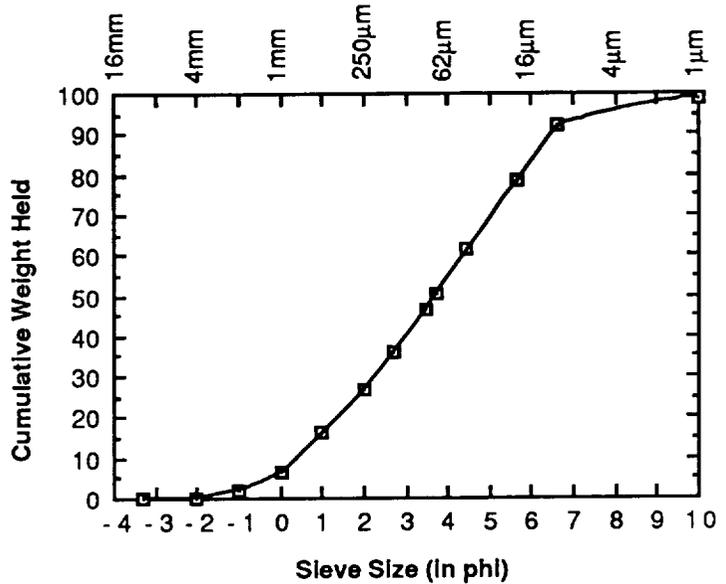
## MATURITY INDEX:

$I_p/FcO = 86$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	1.99
1000.00	4.25
500.00	10.10
250.00	10.32
150.00	9.50
90.00	10.30
75.00	4.21
45.00	10.72
20.00	16.83
10.00	13.73
1.00	7.06

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



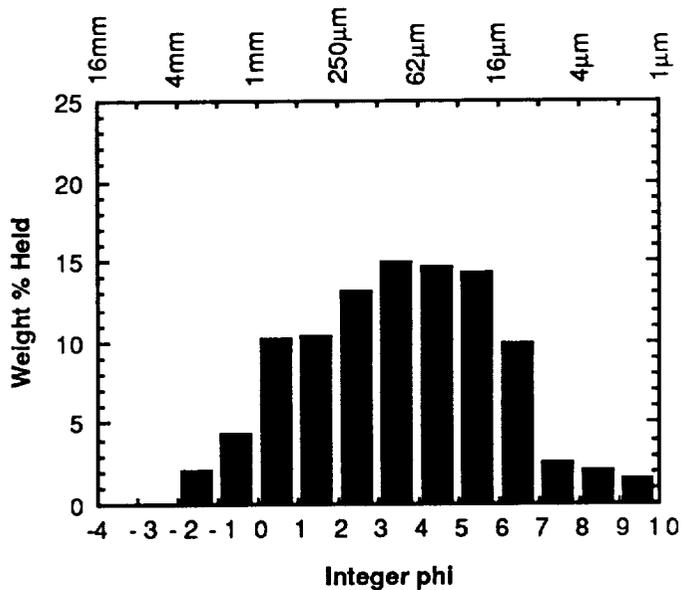
## GRAPHIC AND MOMENT MEASURES

Mean:	3.57
Median:	3.70
Mode:	3.50
Sorting:	2.49
Skewness:	-0.02
Kurtosis:	0.93

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-0.24
16	0.97
25	1.85
50	3.70
75	5.42
84	6.06
95	7.82

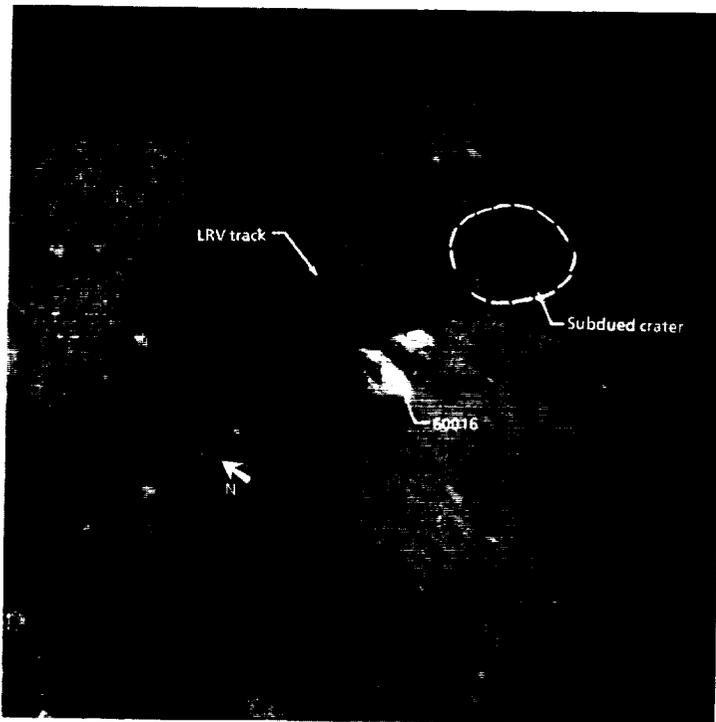
## SIZE DISTRIBUTION HISTOGRAM



60016 Sample Environment

AS16-113-18303

Pre-sampling, small craters  
are more easily seen with  
this high camera angle.



60016 Sample Environment

AS16-110-17867

Pre-sampling, close up.

**Soil: 60016**  
(subsample 60016,165)  
D.S. McKay PI

**LOCATION COMMENTS:**

This is a friable breccia disaggregated with 1362 freeze - thaw cycles. The breccia was collected 15 meters southwest of the LM. The sample area was fairly flat with fragments up to 20 cm in the area. Craters >3 cm are sparse near the sample environment. The surface is relatively unpitted and smooth.

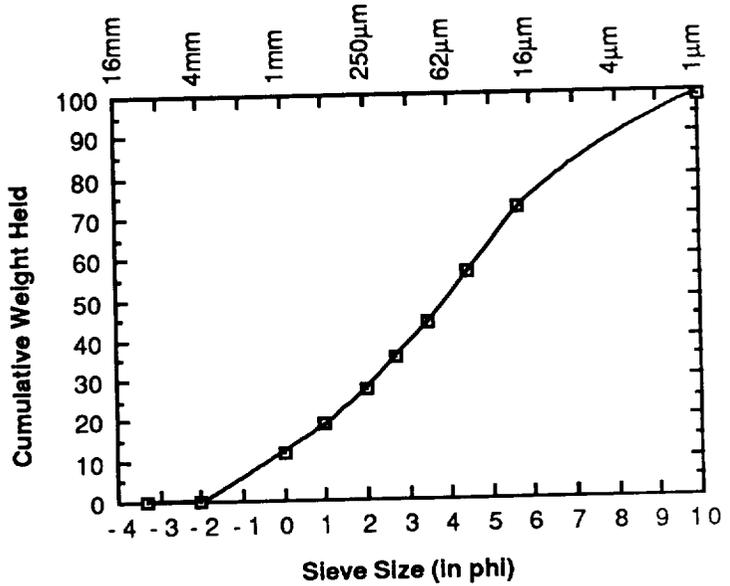
**MATURITY INDEX:**

$I_p/FeO = 1$  (immature)

**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	0.00
1000.00	11.99
500.00	6.64
250.00	9.00
150.00	7.85
90.00	8.15
45.00	12.61
20.00	15.36
1.00	27.39

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



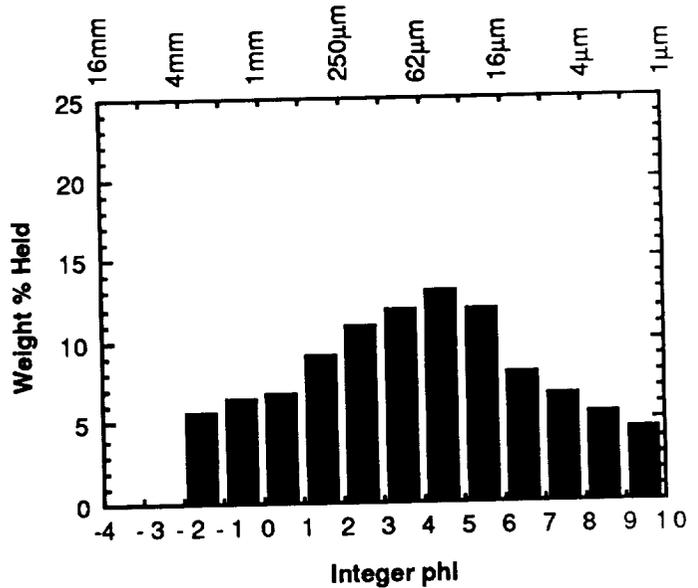
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.95
Median:	3.99
Mode:	4.50
Sorting:	3.21
Skewness:	-0.00
Kurtosis:	0.98

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-1.09
16	0.62
25	1.73
50	3.99
75	6.02
84	7.24
95	9.15

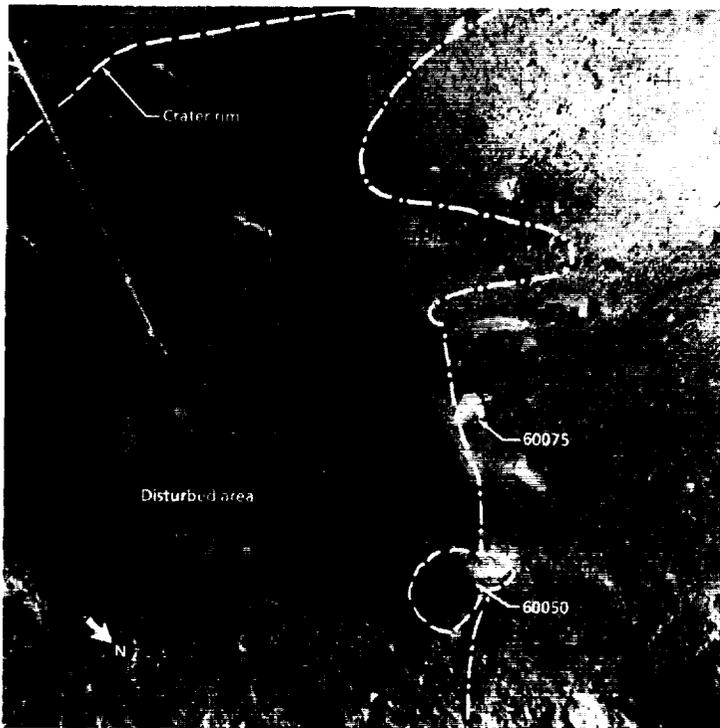
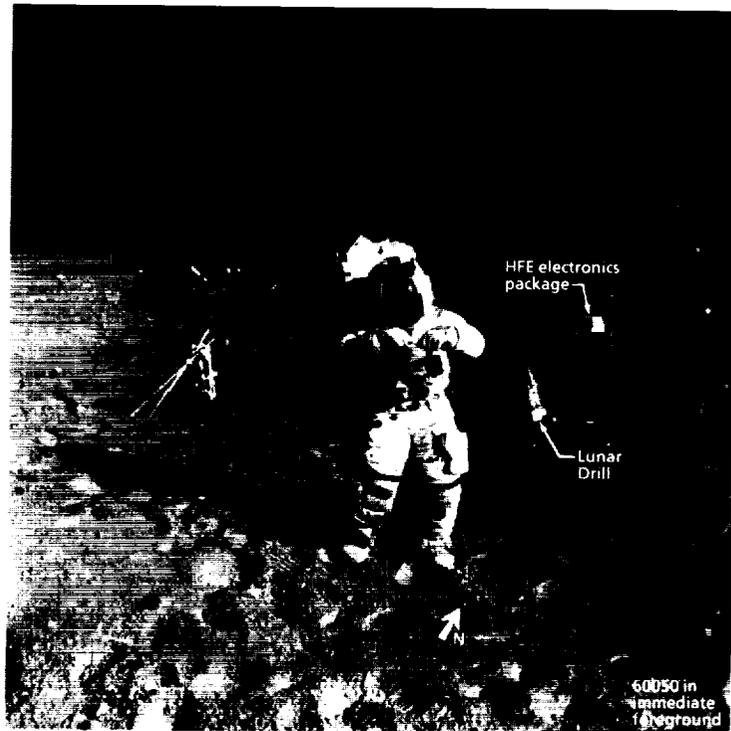
**SIZE DISTRIBUTION HISTOGRAM**



60050 Sample Environment

AS16-114-18388

Sample environment.



60050 Sample Environment

AS16-114-18386

Post-sampling, close up.

**Soil: 60050**  
(Subsample 60051,2)  
E.A. King PI

**LOCATION COMMENTS:**

Scooped soil from the ALSEP site, approximately 170 meters south-southwest of the LM and 50 meters south-southeast of the ALSEP central station. Sample contains friable white breccias described by the crew as "caliche - like." Sample area contains abundant fragments <15 cm. The soil is light colored and loose in the crater wall and rim. This soil was taken from the loose material on the rim of a 5 meter crater.

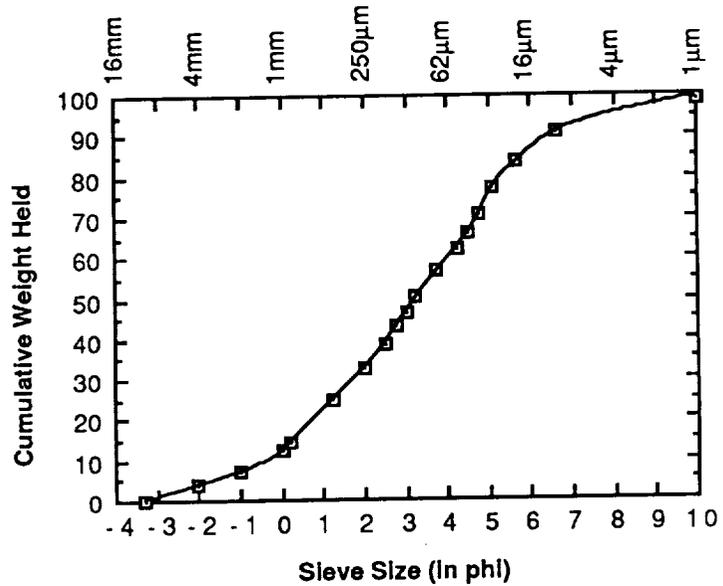
**MATURITY INDEX:**

$I_p/FeO = 45$  (submature)

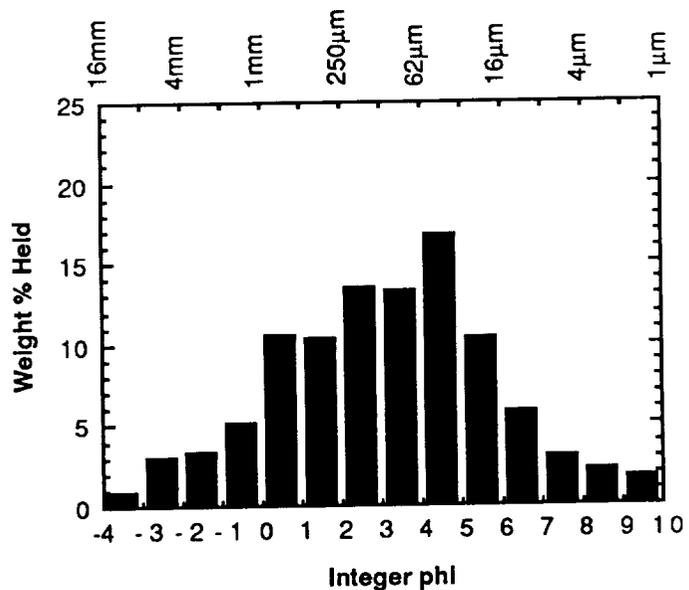
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	3.73
2000.00	3.30
1000.00	5.09
841.00	2.49
420.00	10.53
250.00	7.73
177.00	5.70
149.00	4.32
125.00	3.42
105.00	4.06
74.00	6.35
53.00	5.63
44.00	3.95
37.00	3.99
30.00	7.01
20.00	6.11
10.00	7.50
1.00	8.10

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.11
Median:	3.23
Mode:	4.50
Sorting:	2.79
Skewness:	-0.04
Kurtosis:	1.06

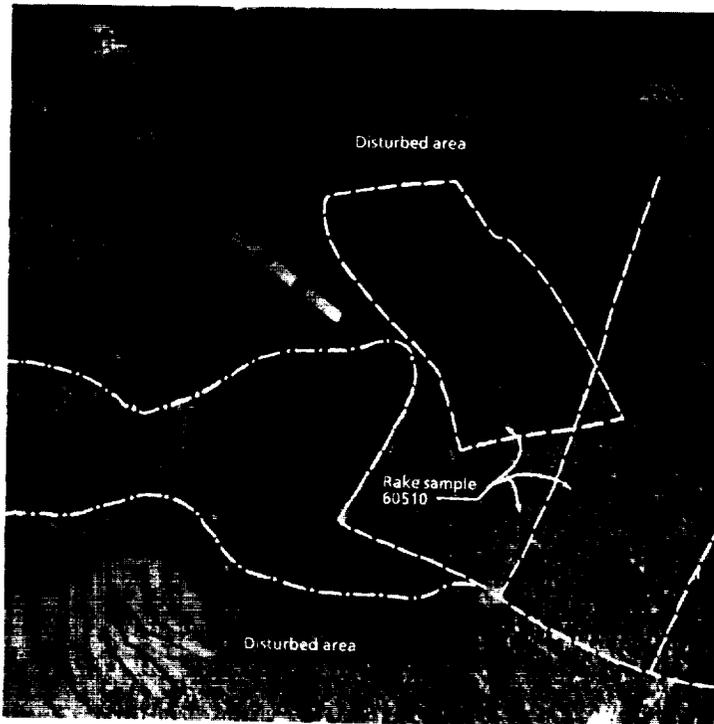
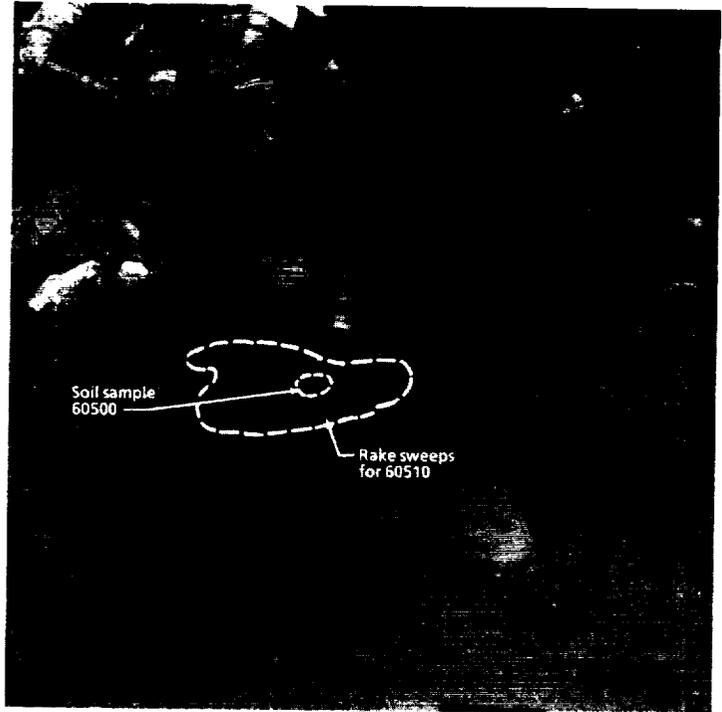
**MOMENT MEASURE DATA**

Wt % held	$\emptyset$ size
5	-1.59
16	0.39
25	1.24
50	3.23
75	4.95
84	5.71
95	8.02

60500 Sample Environment

AS16-117-18826

Pre-sampling, note  
disturbed soil around  
astronaut's right boot.



60500 Sample Environment

AS16-116-18687

Post-sampling, close up.  
60500 site is within rake  
sweeps.

**Soil: 60500**  
 (Subsample 60501,1)  
 E.K. Gibson PI

**LOCATION COMMENTS:**

60500 was collected 5 meters southeast of Station 10 approximately 100 meters southwest of the LM. The sample accompanies rake sample 60510. The surrounding area is level with 2-3 cm pebbles exposed on the surface.

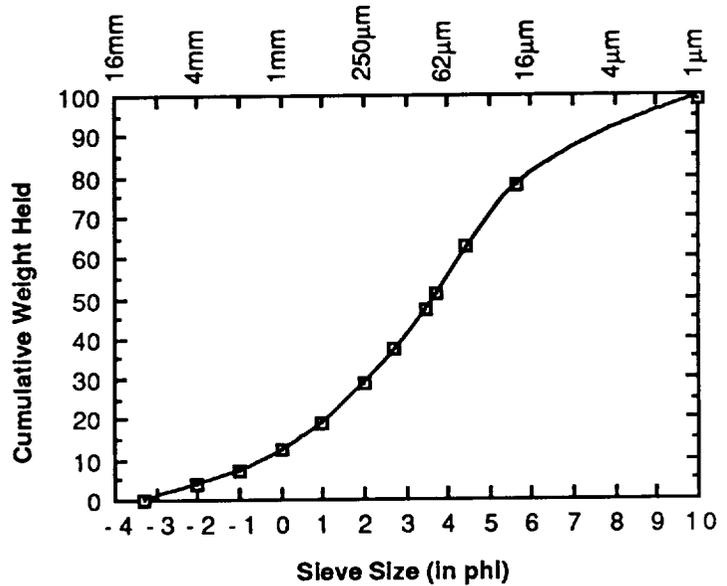
**MATURITY INDEX:**

$I_p/FeO = 80$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	3.74
2000.00	3.30
1000.00	5.07
500.00	7.15
250.00	9.33
150.00	8.44
90.00	10.03
75.00	3.83
45.00	11.72
20.00	15.43
1.00	20.96

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



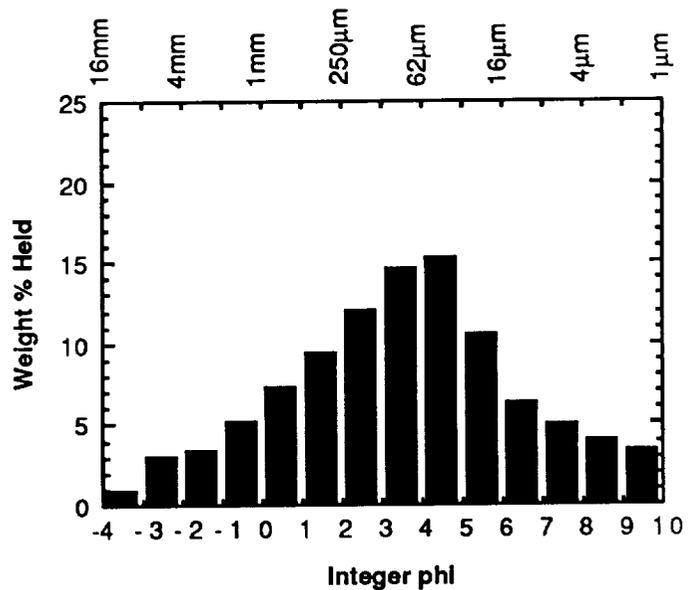
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.60
Median:	3.68
Mode:	4.50
Sorting:	3.08
Skewness:	-0.02
Kurtosis:	1.16

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.60
16	0.58
25	1.64
50	3.68
75	5.35
84	6.55
95	8.89

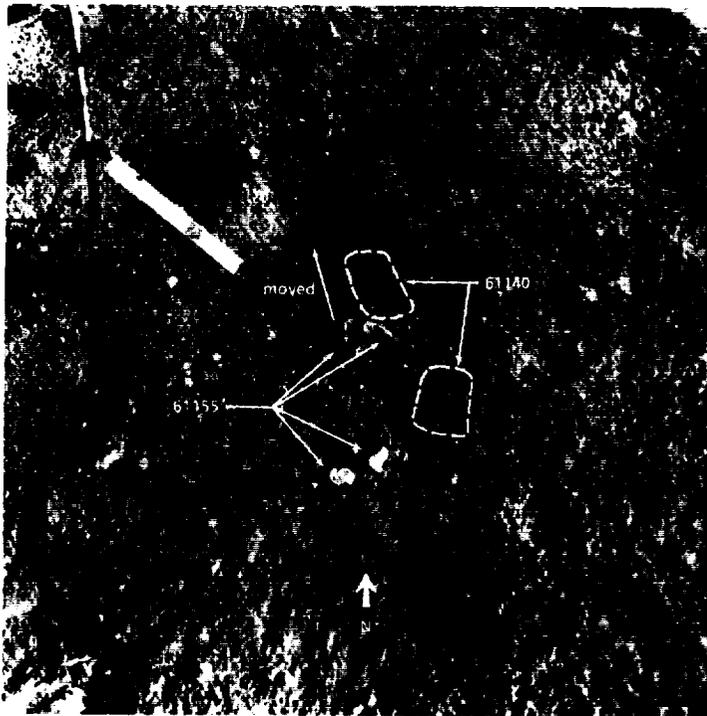
**SIZE DISTRIBUTION HISTOGRAM**



61140 Sample Environment

AS16-109-17797

Pre-sampling, part of the  
Flag crater radial sample  
sequence.



61140 Sample Environment

AS16-114-18397

Pre-sampling, close up.

**Soil: 61140**  
 (Subsample 61141,3)  
 E.A. King PI

**LOCATION COMMENTS:**

Surface sample collected 30 meters northeast of Plum crater as part of a radial sample sequence (with 61180, 61500, and 61160) Station 1. Site level with fragments <4 cm are common and >4 cm are absent. Craters <50 cm are common and larger ones are sparse, most craters in the area are subdued but one is sharp with a radial raised rim.

**MATURITY INDEX:**

$I_g/FeO = 56$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	3.64
2000.00	3.44
1000.00	6.02
841.00	1.13
420.00	8.86
250.00	9.09
177.00	6.55
149.00	3.82
125.00	4.20
105.00	4.01
74.00	6.76
53.00	5.60
44.00	4.12
37.00	3.41
30.00	6.99
20.00	4.70
10.00	7.14
1.00	9.51

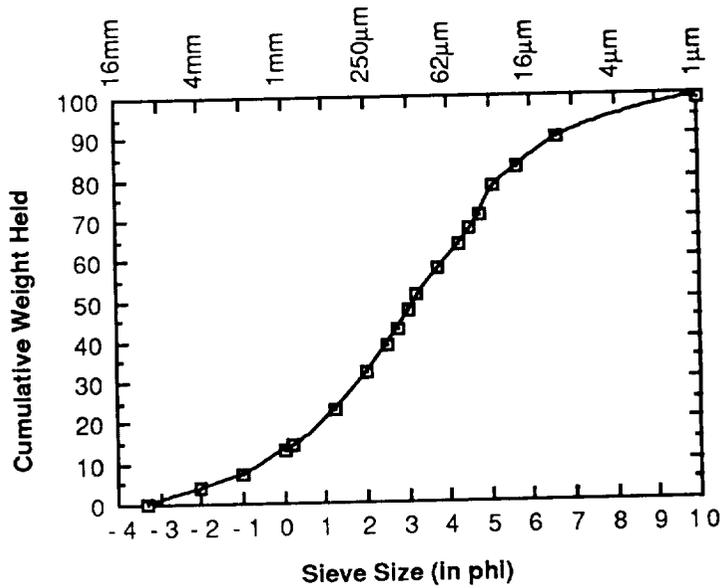
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.19
Median:	3.20
Mode:	4.50
Sorting:	2.83
Skewness:	0.01
Kurtosis:	1.15

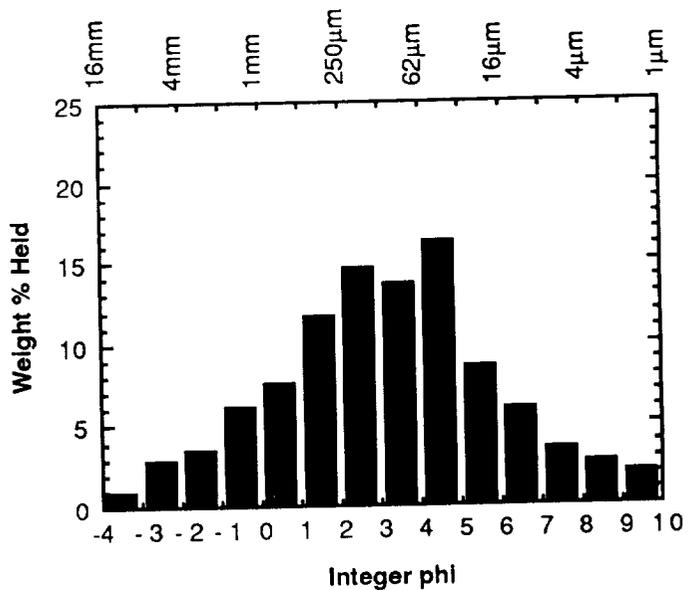
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.57
16	0.52
25	1.42
50	3.20
75	4.93
84	5.86
95	8.28

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**

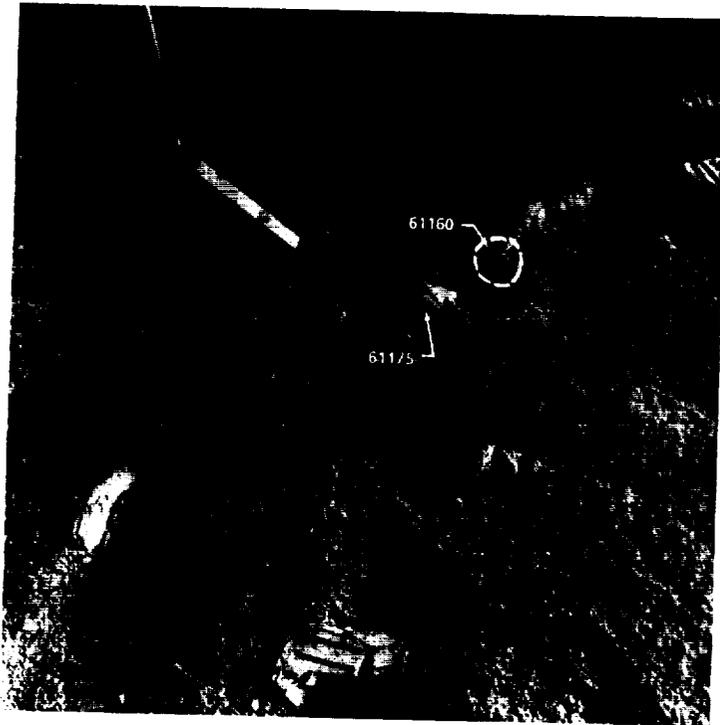
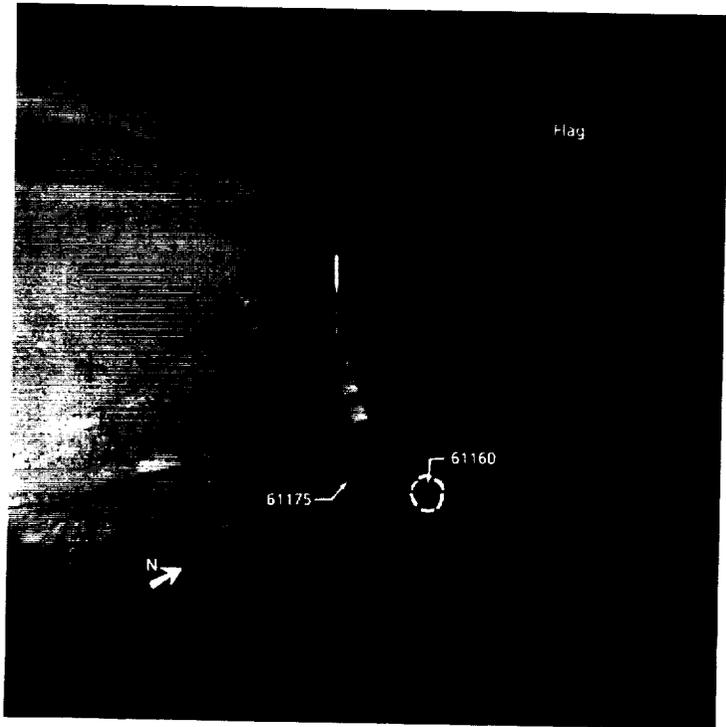


**SIZE DISTRIBUTION HISTOGRAM**



61160 Sample Environment  
AS16-109-17798

Pre-sampling.



61160 Sample Environment  
AS16-114-18401

Pre-sampling, close up.

**Soil: 61160**  
 (Subsample 61161,2)  
 D.S. McKay PI

**LOCATION COMMENTS:**

This surface sample was collected 10 meters Northeast of the rim of Plum crater as part of a radial sample sequence (with 61180, 61500, and 61140). It was collected from a spot disturbed by a footprint. The site is level with fragments <2 cm common and >2 cm sparse. A .75 m boulder is 2 meters north of the sample.

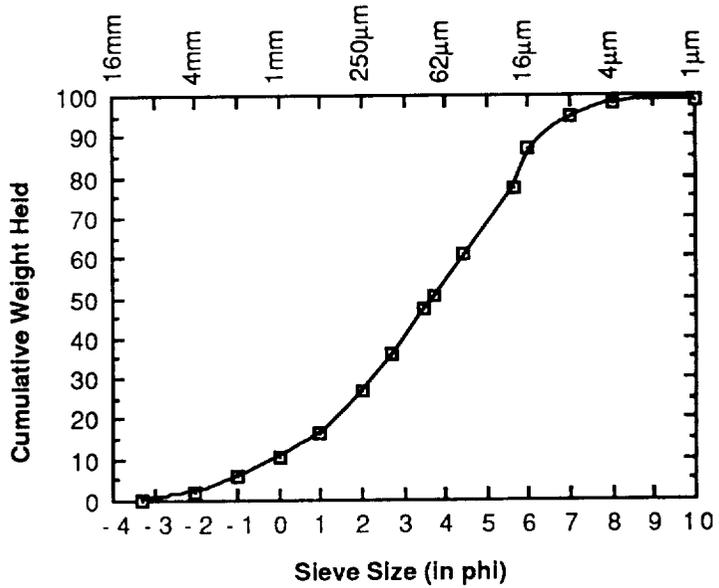
**MATURITY INDEX:**

$I_s/FeO = 82$  (mature)

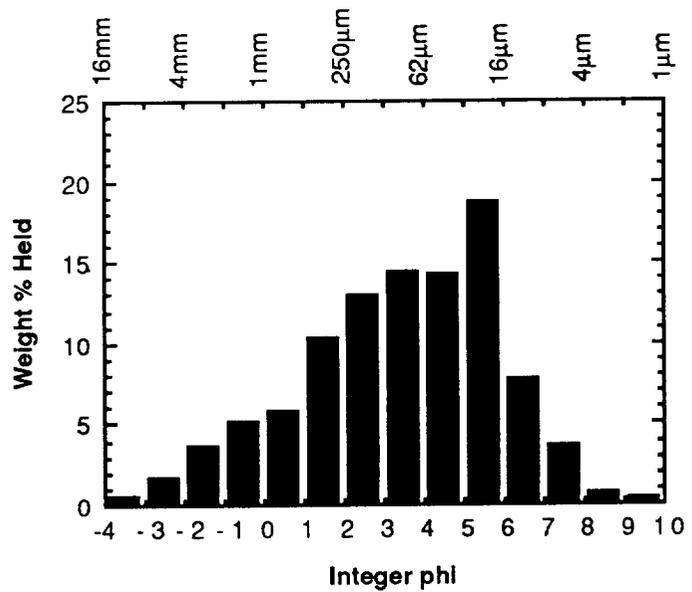
**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	2.12
2000.00	3.53
1000.00	5.03
500.00	5.76
250.00	10.29
150.00	9.10
90.00	10.96
75.00	3.47
45.00	10.56
20.00	16.54
15.60	9.48
7.80	7.61
3.90	3.54
1.00	1.00

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

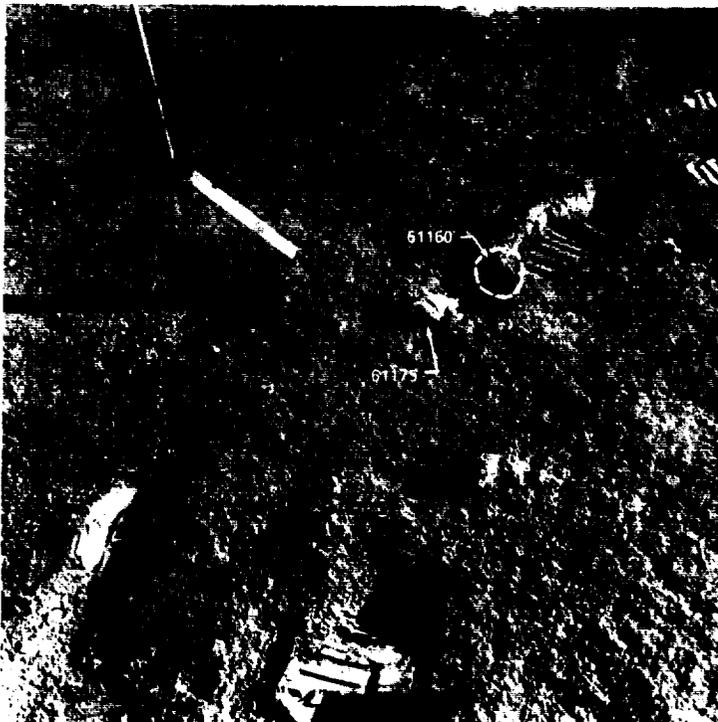
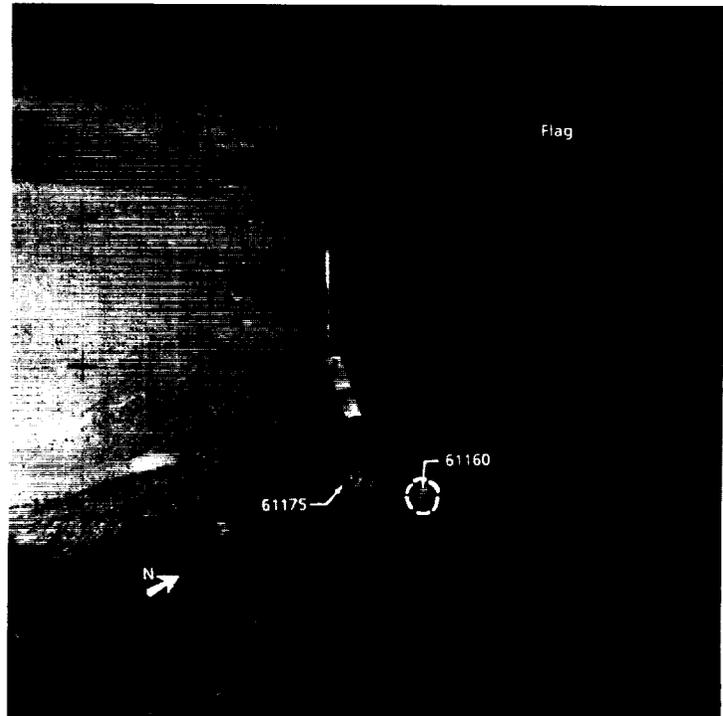
Mean:	3.51
Median:	3.72
Mode:	5.50
Sorting:	2.49
Skewness:	-0.15
Kurtosis:	0.93

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.16
16	0.93
25	1.85
50	3.72
75	5.48
84	5.87
95	7.13

61175 Sample Environment  
AS16-109-17798

Pre-sampling.



61175 Sample Environment  
AS16-114-18401

Pre-sampling, close up.

**Soil: 61175**  
 (Subsample 61175,207)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Friable breccia 61175 was collected with 61160 10 meters northeast of the rim of Plum crater at Station 1. The breccia was disaggregated by 4964 freeze - thaw cycles. There were two 5 cm fragments in the immediate sample area, including sample 61175. Craters greater than 2 meters in the sample area are sparse.

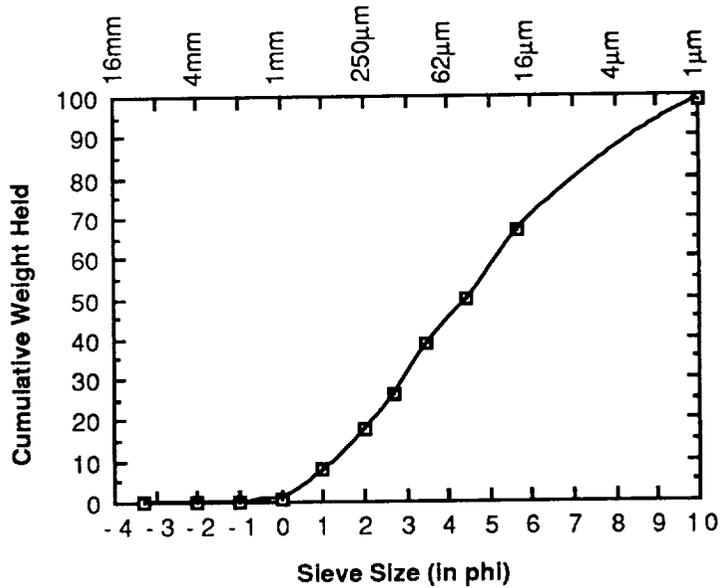
**MATURITY INDEX:**

$I_s/FeO = 8$  (immature)

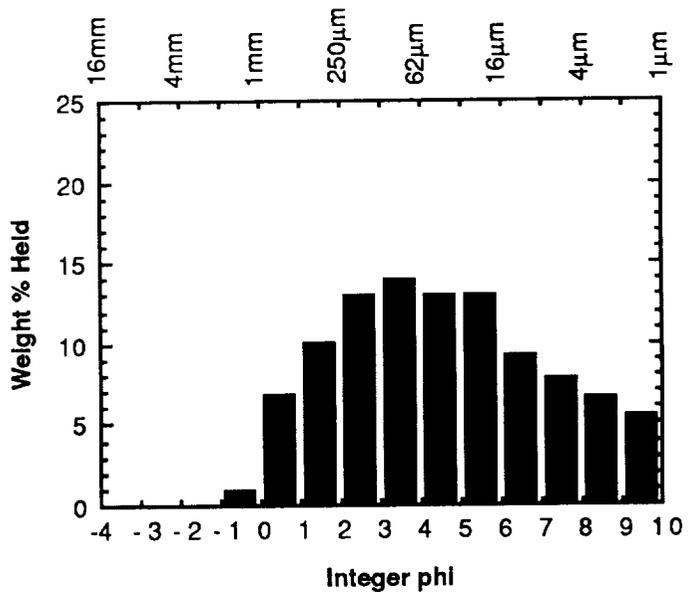
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	0.00
1000.00	0.87
500.00	6.71
250.00	9.94
150.00	8.85
90.00	11.96
45.00	11.57
20.00	16.60
1.00	32.49

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	4.66
Median:	4.48
Mode:	3.50
Sorting:	2.75
Skewness:	0.10
Kurtosis:	0.91

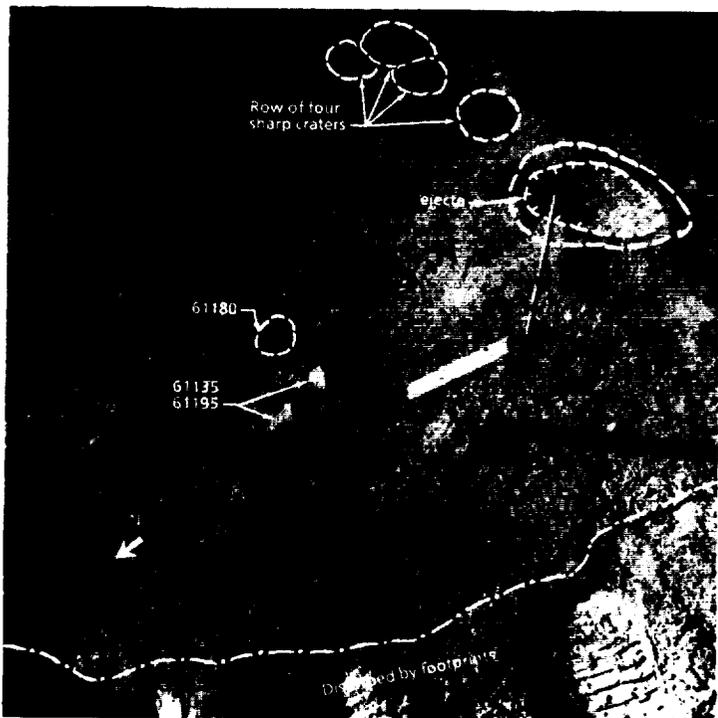
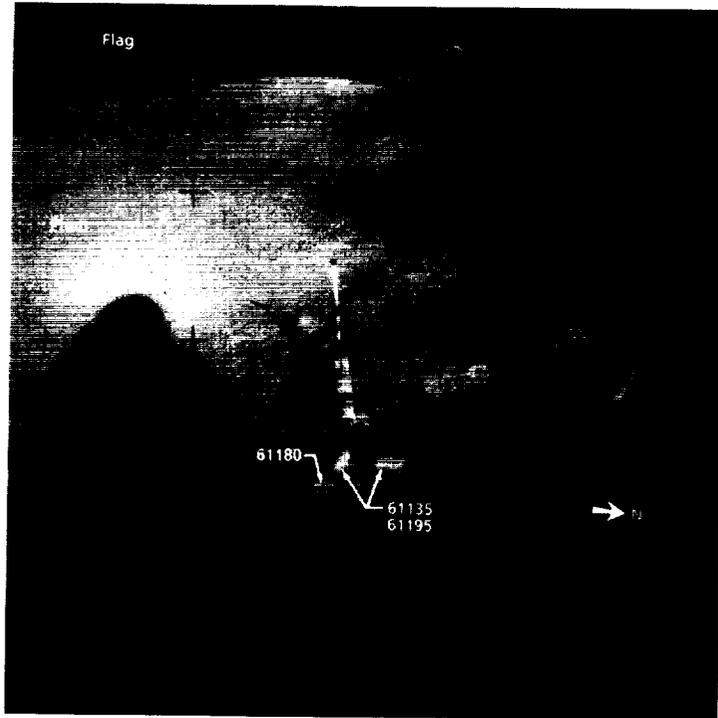
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.66
16	1.86
25	2.63
50	4.48
75	6.51
84	7.63
95	9.29

61180 Sample Environment

AS16-109-17799

Pre-sampling, on the rim of  
Plum crater.



61180 Sample Environment

AS16-114-18405

Pre-sampling, close up.

**Soil: 61180**  
 (Subsample 61181,2)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Surface sample collected at Station 1 on the rim of Plum crater and on the rim of a smaller, 10 meter crater. Innermost of a radial sample sequence with 61500, 61160, and 61140. The site is level until there is a break at Plum crater, fragments <2 cm are common, >10 cm are sparse. Craters <10 cm are dense and craters <1 meter are common. Some of the larger craters are subdued and some are sharp.

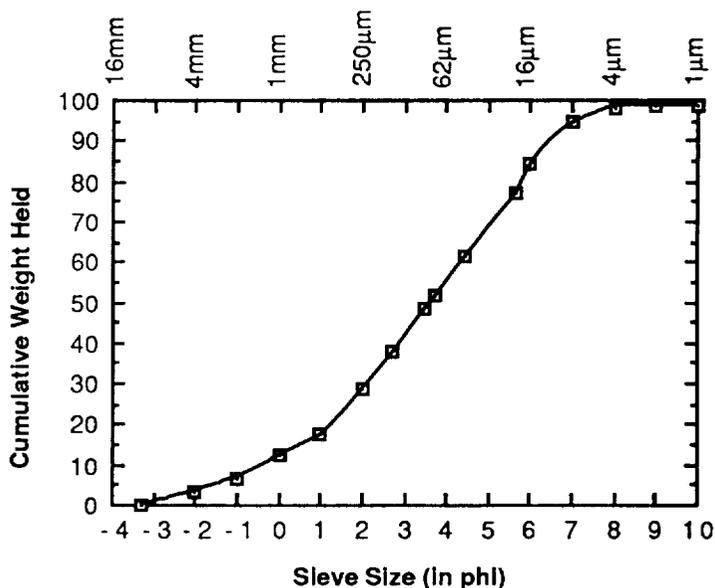
**MATURITY INDEX:**

$I_g/FeO = 82$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	3.39
2000.00	3.46
1000.00	5.25
500.00	5.33
250.00	11.14
150.00	9.13
90.00	10.44
75.00	3.39
45.00	9.99
20.00	15.44
15.60	7.42
7.80	10.14
3.90	3.81
2.00	0.68
1.00	0.00

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



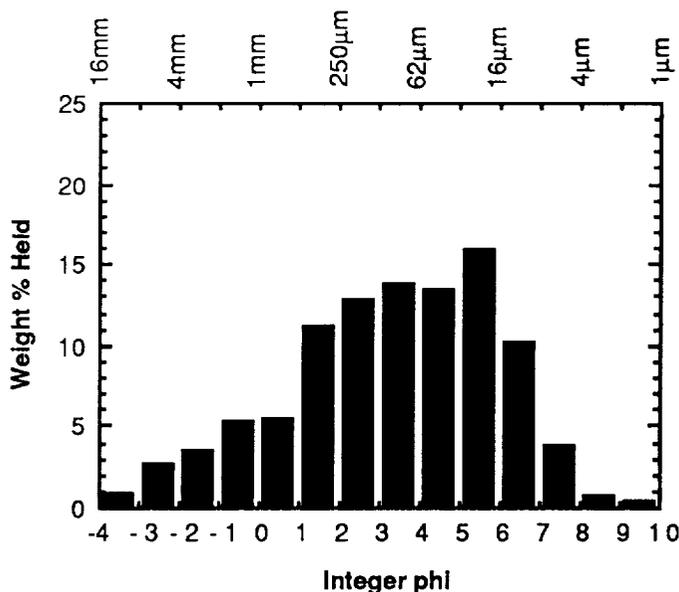
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.45
Median:	3.62
Mode:	5.50
Sorting:	2.61
Skewness:	-0.14
Kurtosis:	0.93

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.50
16	0.74
25	1.70
50	3.62
75	5.50
84	5.98
95	7.11

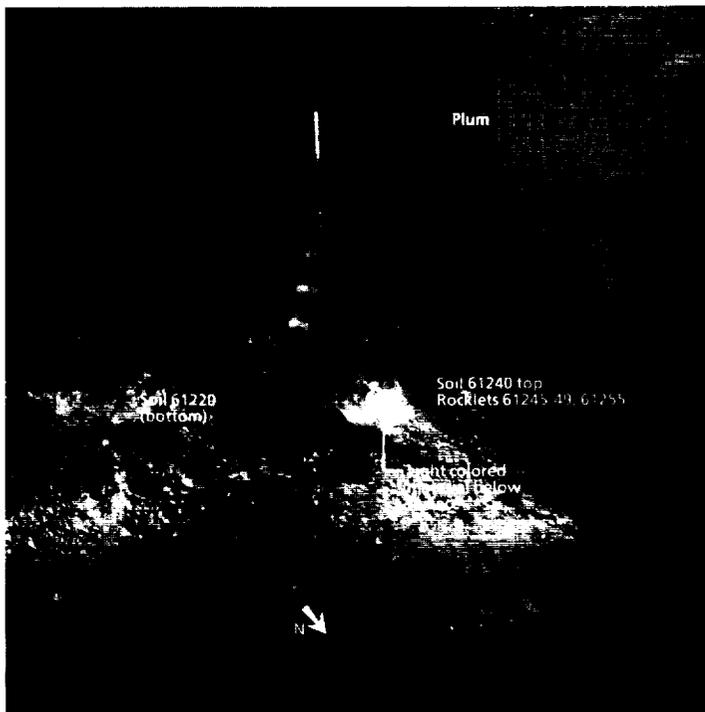
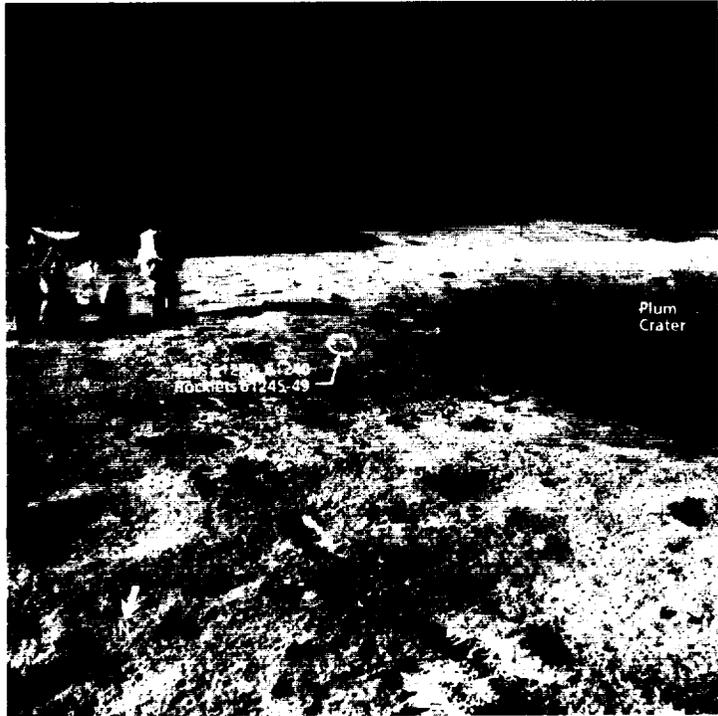
**SIZE DISTRIBUTION HISTOGRAM**



61220 Sample Environment

AS16-109-17789

Pre-sampling.



61220 Sample Environment

AS16-109-17801

Post-sampling, 61220 is light colored material seen on trench wall and collected from the bottom of the trench.

**Soil: 61220**  
 (Subsample 61221,15)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Trench samples taken from the east rim of Plum crater at Station 1. 61220 is from the bottom of the trench and 61240 is from the top. This sample includes several rock chips. .5-2 cm fragments are common near the sample site. Soil color is listed as light olive gray but mission transcripts state, "I just had a good scoopful, and I lost it. Let me dig out a little - another little trench. There she be. Coming up all white. That's all that's in there John."

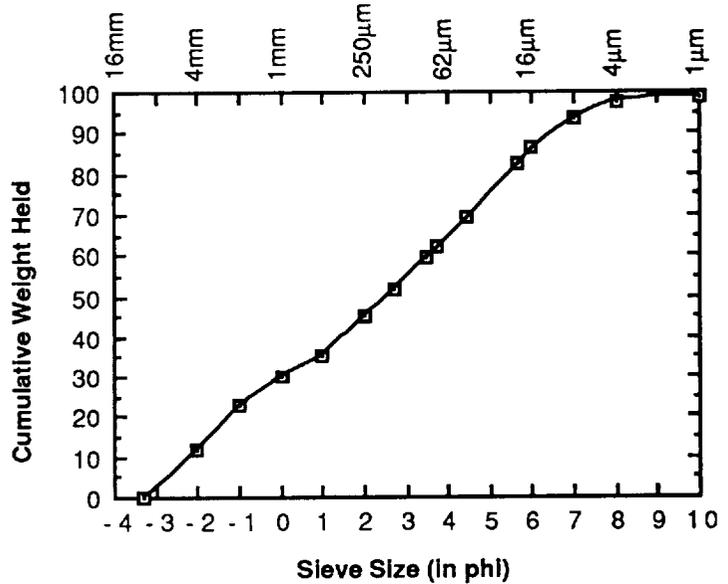
**MATURITY INDEX:**

$I_s/FeO = 9.2$  (immature)

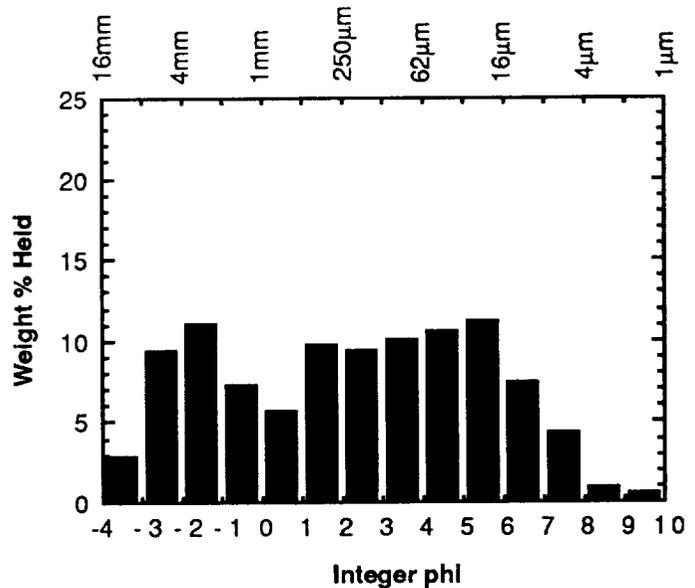
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	11.96
2000.00	10.87
1000.00	7.19
500.00	5.60
250.00	9.67
150.00	6.57
90.00	7.79
75.00	2.33
45.00	7.45
20.00	12.63
15.60	4.01
7.80	7.30
3.90	4.31
1.00	1.32

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	2.24
Median:	2.53
Mode:	5.50
Sorting:	3.38
Skewness:	-0.08
Kurtosis:	0.72

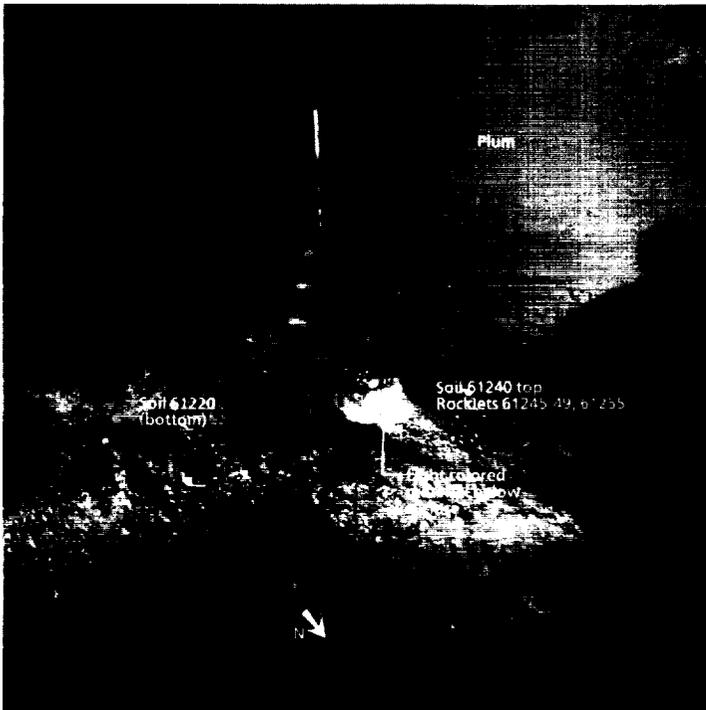
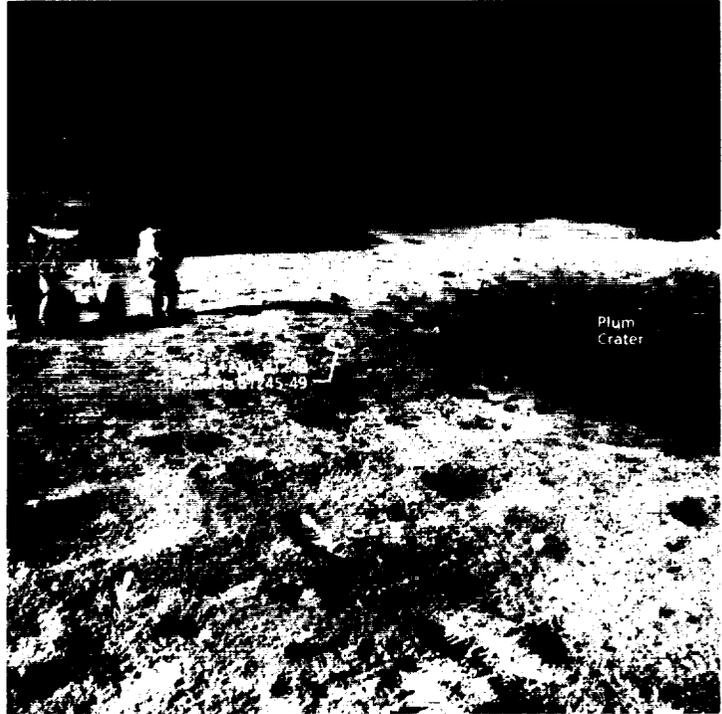
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.74
16	-1.62
25	-0.73
50	2.53
75	5.00
84	5.82
95	7.32

61240 Sample Environment

AS16-109-17789

Pre-sampling.



61240 Sample Environment

AS16-109-17801

Post-sampling, 61240 is darker material at top of trench.

**Soil: 61240**  
 (Subsample 61241,18)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Trench samples taken from the east rim of Plum crater at Station 1. 61220 is from the bottom of the trench and 61240 is from the top. This sample includes several rock chips. .5-2 cm fragments are common near the sample site. Soil color is listed as light olive gray but mission transcripts state, "I just had a good scoopful, and I lost it. Let me dig out a little - another little trench. There she be. Coming up all white. That's all that's in there John."

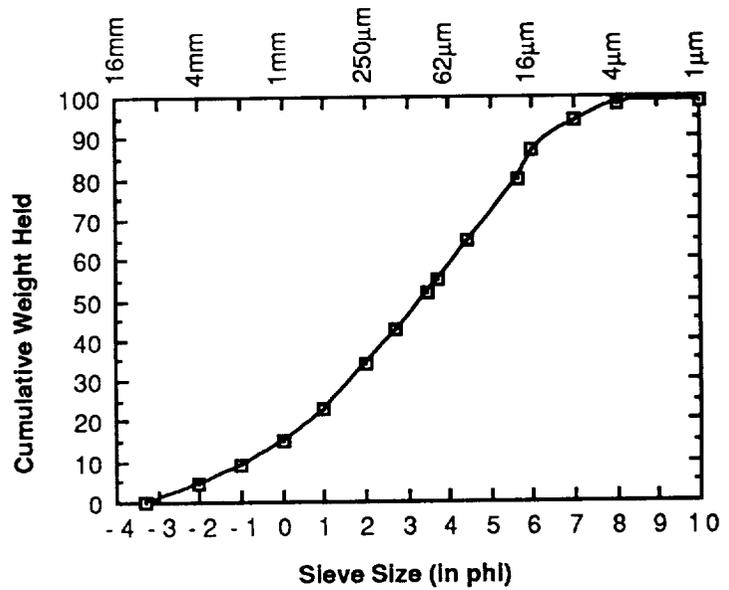
**MATURITY INDEX:**

$I_g/FeO = 47$  (submature)

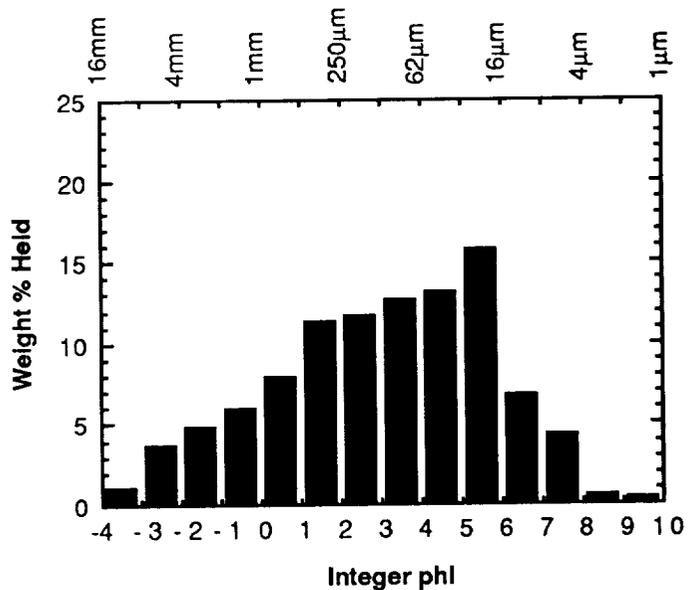
**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	4.50
2000.00	4.69
1000.00	5.86
500.00	7.80
250.00	11.27
150.00	8.38
90.00	9.25
75.00	3.25
45.00	9.70
20.00	15.20
15.60	7.34
7.80	6.68
3.90	4.28
1.00	0.80

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**

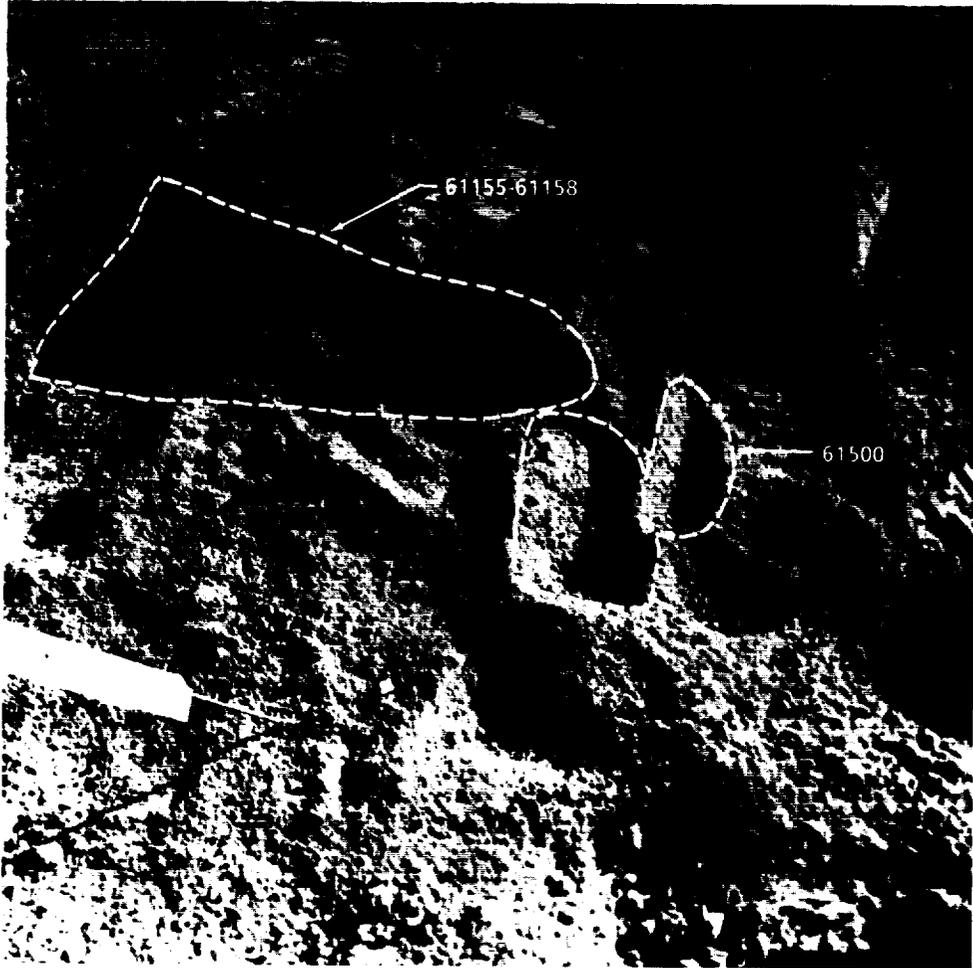


**GRAPHIC AND MOMENT MEASURES**

Mean:	3.10
Median:	3.33
Mode:	5.50
Sorting:	2.80
Skewness:	-0.13
Kurtosis:	0.91

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.88
16	0.14
25	1.19
50	3.33
75	5.27
84	5.84
95	7.22



61500 Sample Environment

AS16-114-18395

Post-sampling.

**Soil: 61500**  
(Subsample 61501,18)  
E.A. King PI

**LOCATION COMMENTS:**

Surface sample about 30 m east of Flag crater and one about 40 m north-northeast of Plum crater at Station 1. This is part of a radial sample sequence with 61180, 61160, and 61140. The site is level with fragments 1-10 cm sparse and none larger in the area. Craters < 3 m are common; most are subdued but one has a sharp rim.

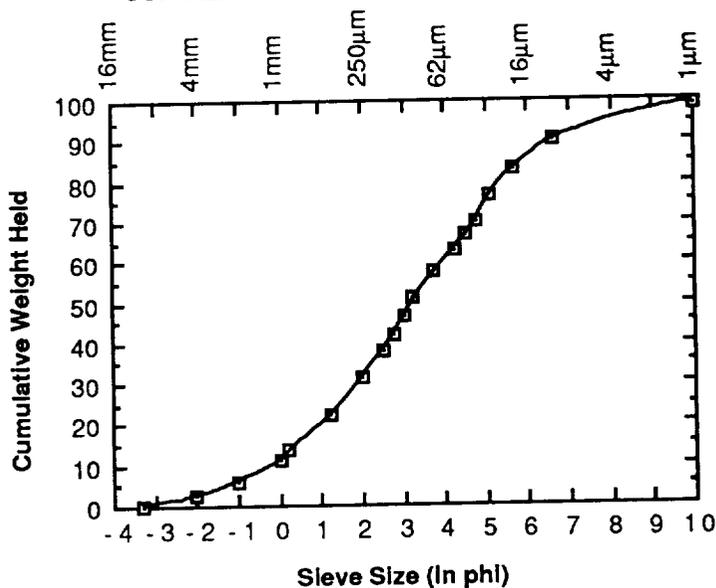
**MATURITY INDEX:**

$I_s/FeO = 53$  (submature)

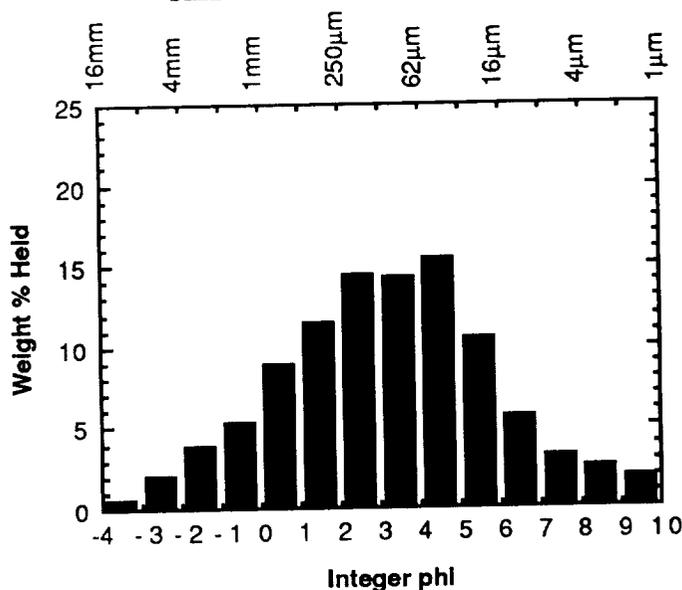
**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	2.39
2000.00	3.77
1000.00	5.15
841.00	2.33
420.00	8.87
250.00	9.16
177.00	6.49
149.00	3.86
125.00	4.07
105.00	4.62
74.00	6.77
53.00	5.46
44.00	3.70
37.00	3.50
30.00	6.62
20.00	6.38
10.00	7.14
1.00	8.73

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.16
Median:	3.21
Mode:	4.50
Sorting:	2.73
Skewness:	0.01
Kurtosis:	1.10

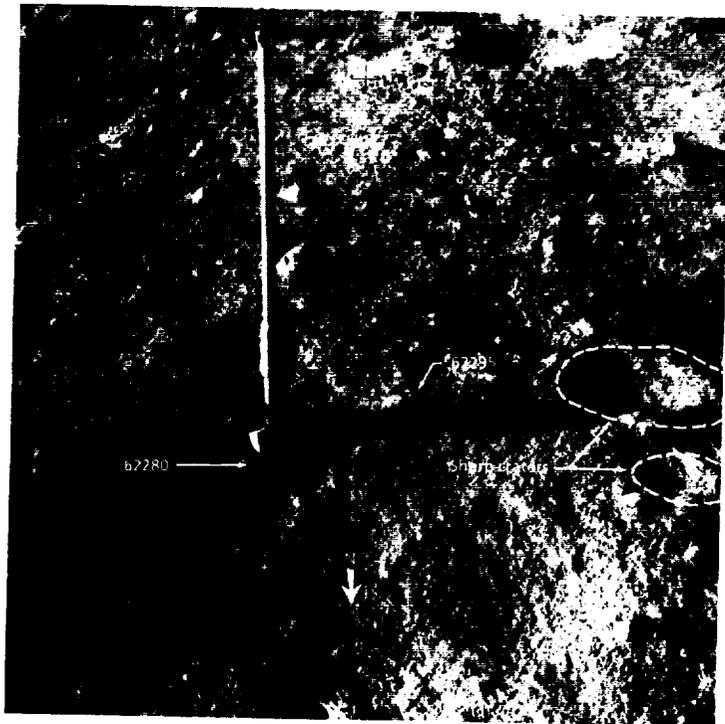
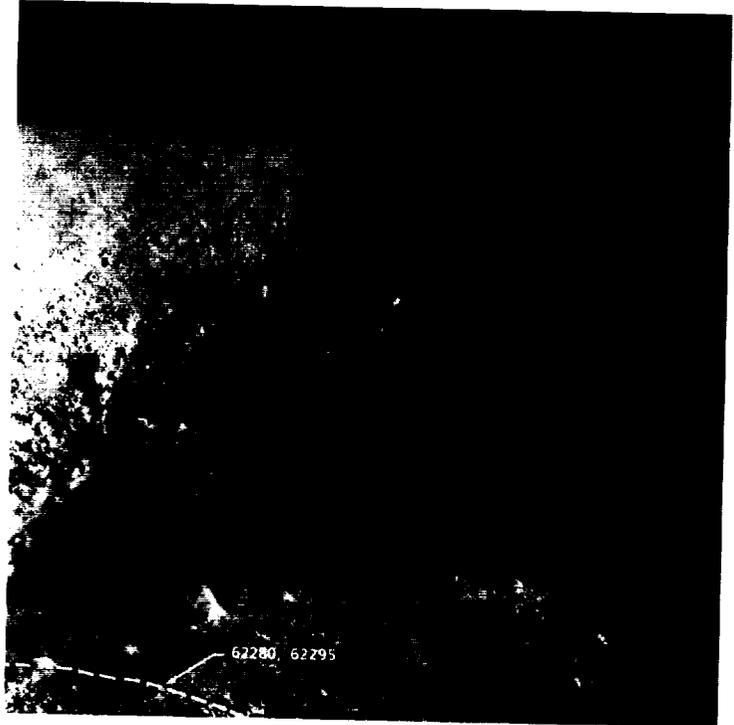
**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-1.27
16	0.51
25	1.47
50	3.21
75	4.97
84	5.74
95	8.14

62280 Sample Environment

AS16-109-17836

Sample area in immediate foreground, Buster crater shown in photo.



62280 Sample Environment

AS16-109-17847

During sampling.

**Soil: 66040**  
(subsample 66041,23)  
W.V. Engelhardt PI

**LOCATION COMMENTS:**

Soils 66040 and 66030 and breccia 66055 were collected at the same location at Station 6. It is supposed that the breccia is local ejecta, but the source crater is not obvious. Both the soils and the breccia were on a 10 meter crater rim near the base of Stone Mountain. In the sample area 15-30 cm blocks are relatively common, soil is relatively firm compared to the looser regolith at Stations 4 and 5. Craters in the area are mostly <5 meters.

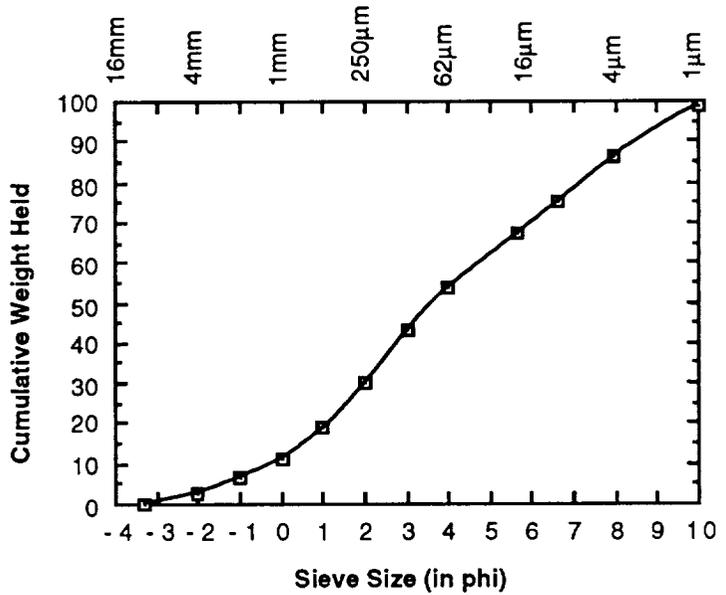
**MATURITY INDEX:**

$I_g/FeO = 90$  (mature)

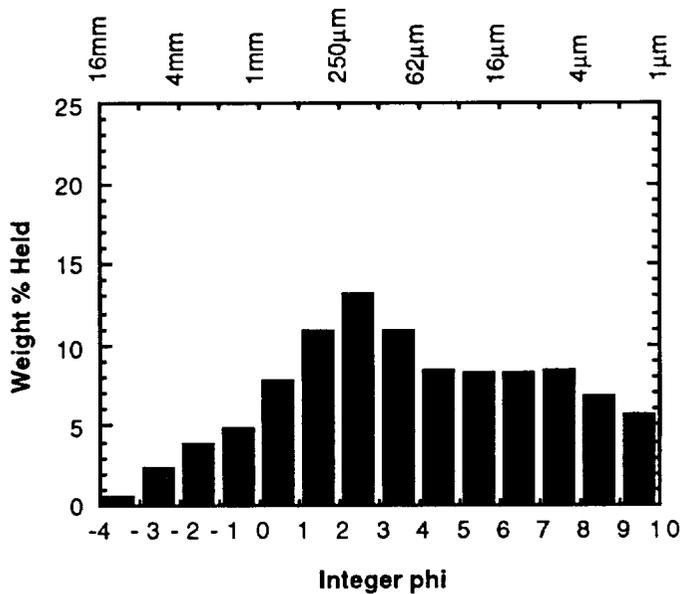
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	2.77
2000	3.8
1000	4.78
500	7.62
250	10.86
125	13.14
63	10.68
20	13.66
10	8.14
4	11.03
1	12.52

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.98
Median:	3.63
Mode:	2.5
Sorting:	3.37
Skewness:	0.11
Kurtosis:	0.87

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.38
16	0.65
25	1.58
50	3.63
75	6.59
84	7.66
95	9.27



**Soil: 62280**  
(subsample 62281,9)  
D.S. McKay PI

**LOCATION COMMENTS:**

Soil 62280 and angular coherent breccia 62295 were collected together about 20 meters northwest of the LRV at Station 2. The sample area is on the south slope of Buster crater, fragments are mostly 5 cm or less, and craters are mostly 5-10 cm. There was a light colored material on the surface of the soil, but none of this high albedo material was found below the surface.

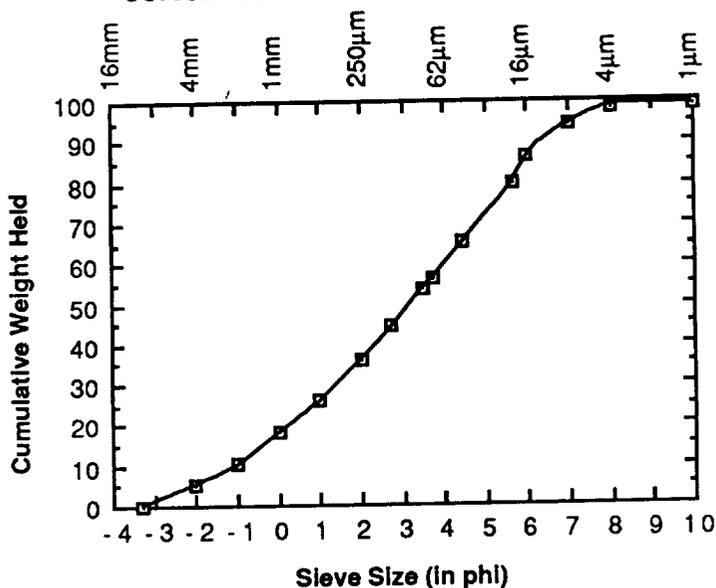
**MATURITY INDEX:**

$I_g/FeO = 76$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	5.29
2000.00	4.85
1000.00	8.03
500.00	7.74
250.00	10.10
150.00	8.36
90.00	9.40
75.00	2.72
45.00	8.75
20.00	14.53
15.60	6.83
7.80	7.47
3.90	4.22
1.00	0.71

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



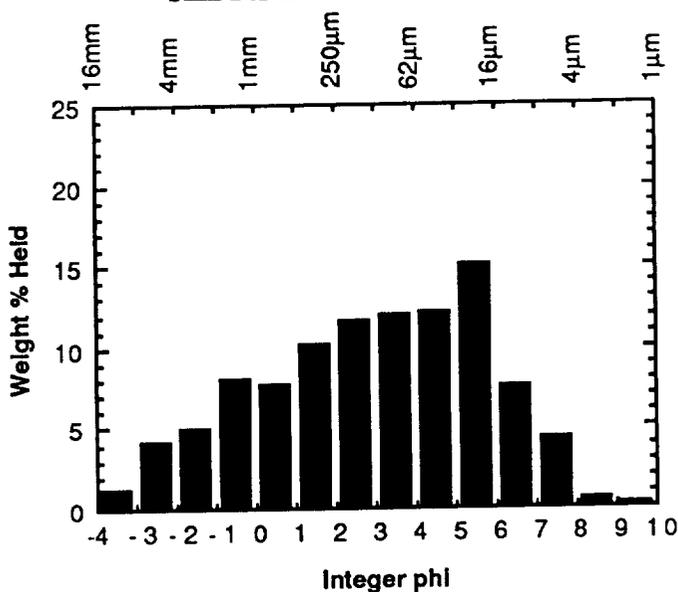
**GRAPHIC AND MOMENT MEASURES**

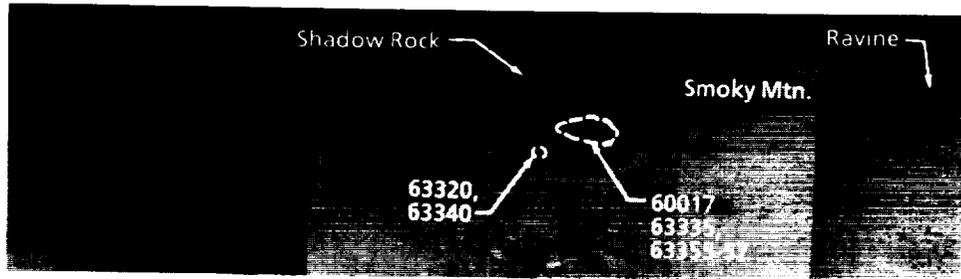
Mean:	2.92
Median:	3.18
Mode:	5.50
Sorting:	2.93
Skewness:	-0.13
Kurtosis:	0.86

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.07
16	-0.27
25	0.89
50	3.18
75	5.28
84	5.86
95	7.19

**SIZE DISTRIBUTION HISTOGRAM**

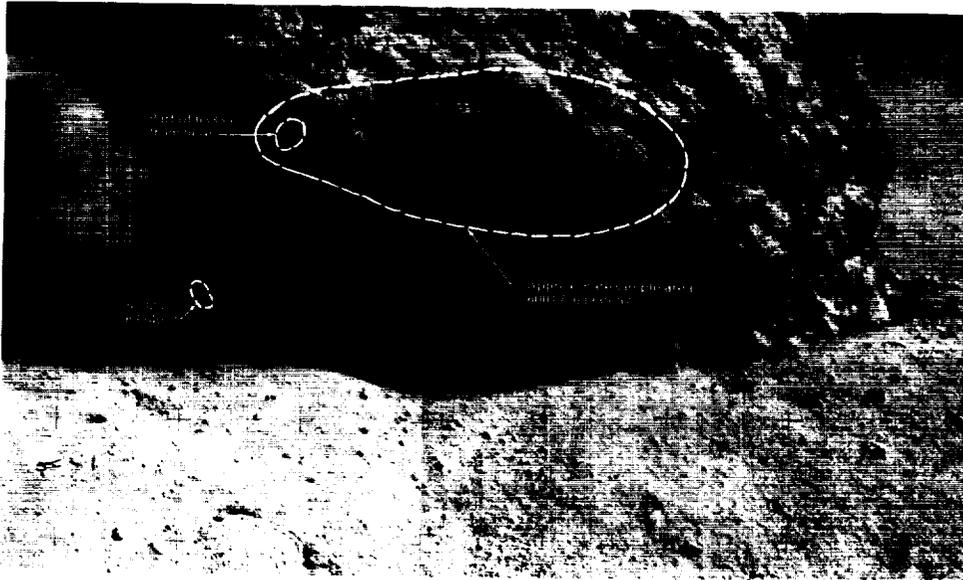




63320 Sample Environment

S-72-38175

Pre-sampling.



63320 Sample Environment

AS16-106-17414 to 15

During sampling.

**Soil: 63320**  
(subsample 63321,14)  
D.S. McKay PI

**LOCATION COMMENTS:**

Part of a suit of samples collected at Shadow rock, Station 13. Two soils were collected; 63320 from the shadowed region of shadow rock and 63340 a control sample collected below 63320. On the southeast slope on the flank of North Ray crater, the sample area has abundant 5-10 cm cobbles with scattered blocks up to 5 meters in size. Abundant .5-1 meter craters in the immediate area. 63320 is probably the fine grained ejecta from North Ray crater. If shadow rock was ejected from North Ray crater, these samples have been virtually undisturbed since the North Ray event.

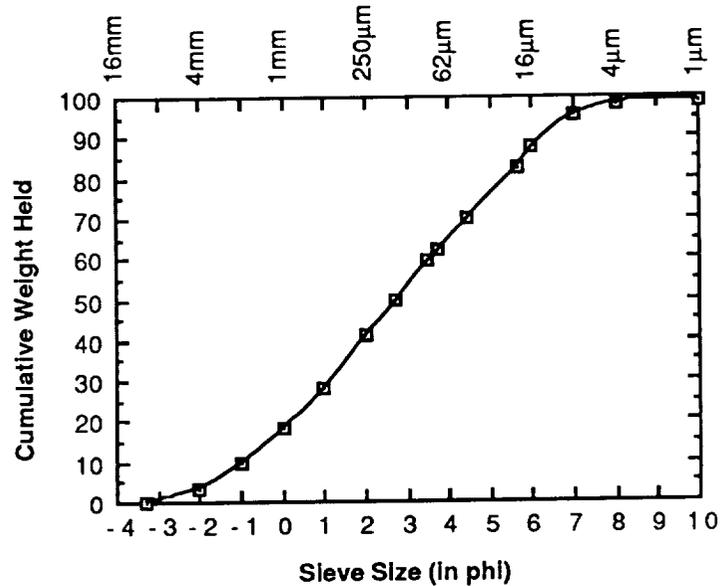
**MATURITY INDEX:**

$I_g/FeO = 47$  (submature)

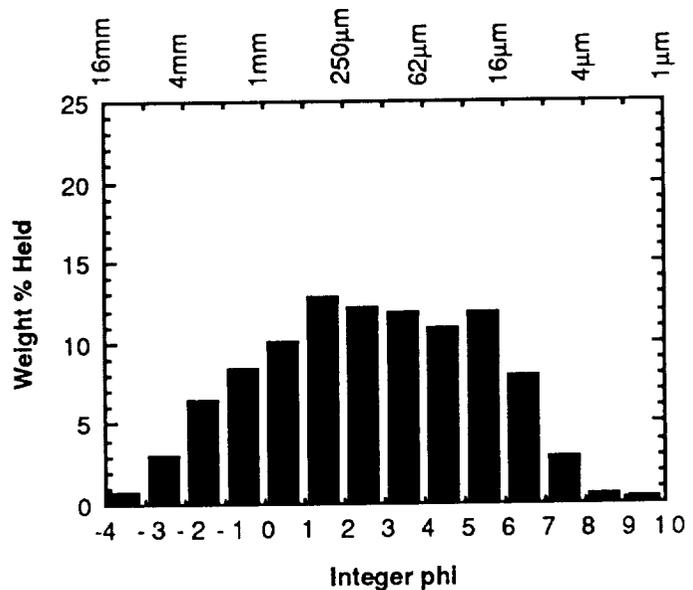
**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	3.58
2000.00	6.36
1000.00	8.33
500.00	9.91
250.00	12.70
150.00	8.74
90.00	9.67
75.00	2.65
45.00	8.14
20.00	12.42
15.60	4.98
7.80	7.88
3.90	2.82
1.00	0.81

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**

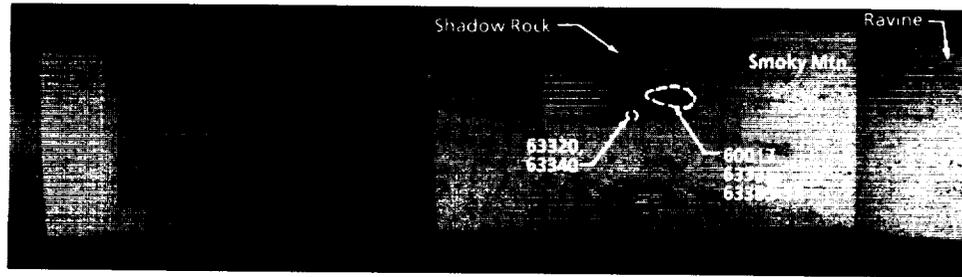


**GRAPHIC AND MOMENT MEASURES**

Mean:	2.76
Median:	2.77
Mode:	1.50
Sorting:	2.81
Skewness:	-0.02
Kurtosis:	0.84

**MOMENT MEASURE DATA**

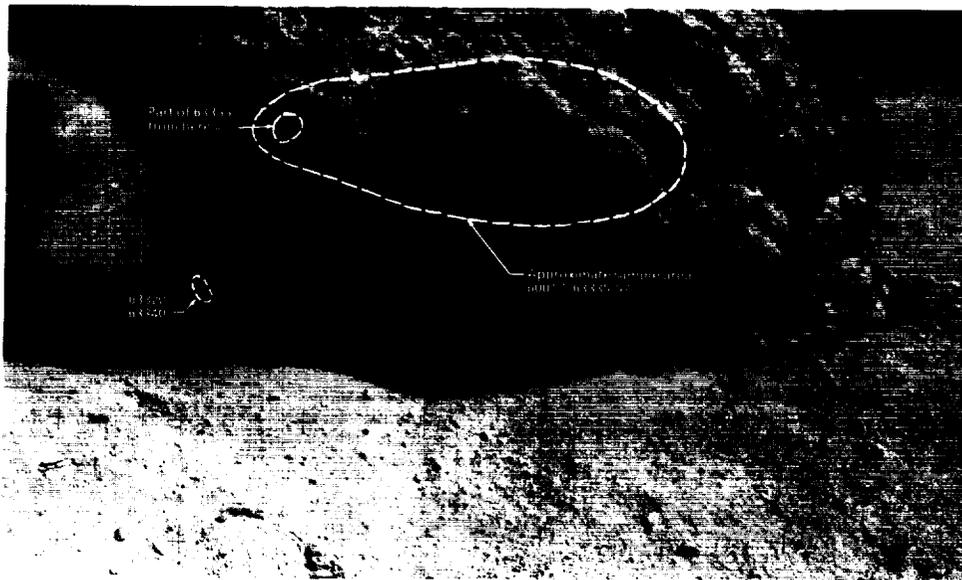
Wt % held	Ø size
5	-1.72
16	-0.26
25	0.70
50	2.77
75	4.93
84	5.75
95	6.91



63340 Sample Environment

S-72-38175

Pre-sampling.



63340 Sample Environment

AS16-106-17414 to 15

During sampling.

**Soil: 63340**  
(subsample 63321,9)  
D.S. McKay PI

**LOCATION COMMENTS:**

Part of a suit of samples collected at Shadow rock, Station 13. Two soils were collected; 63320 from the shadowed region of shadow rock and 63340 a control sample collected below 63320. On the southeast slope on the flank of North Ray crater, the sample area has abundant 5-10 cm cobbles with scattered blocks up to 5 meters in size. Abundant .5-1 meter craters in the immediate area. 63320 is probably the fine grained ejecta from North Ray crater. If shadow rock was ejected from North Ray crater, these samples have been virtually undisturbed since the North Ray event.

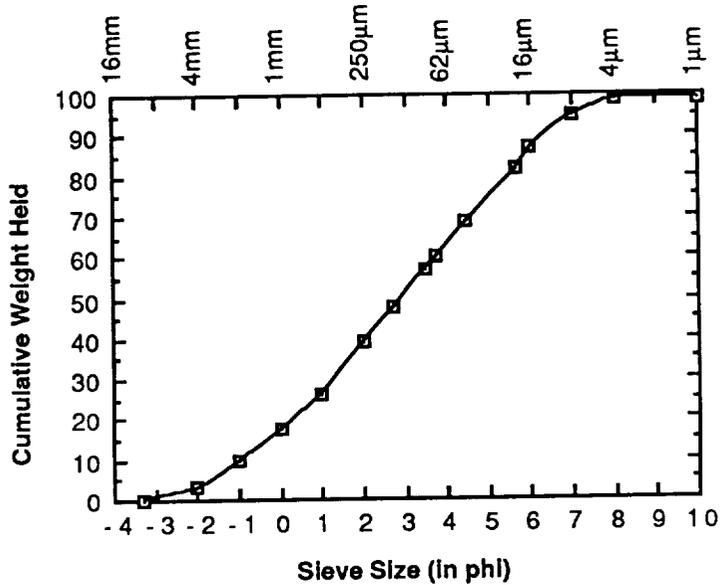
**MATURITY INDEX:**

$I_3/FeO = 54$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	3.02
2000.00	6.69
1000.00	7.92
500.00	8.78
250.00	12.63
150.00	8.74
90.00	9.33
75.00	2.97
45.00	8.36
20.00	13.03
15.60	5.55
7.80	7.58
3.90	3.82
1.00	0.57

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



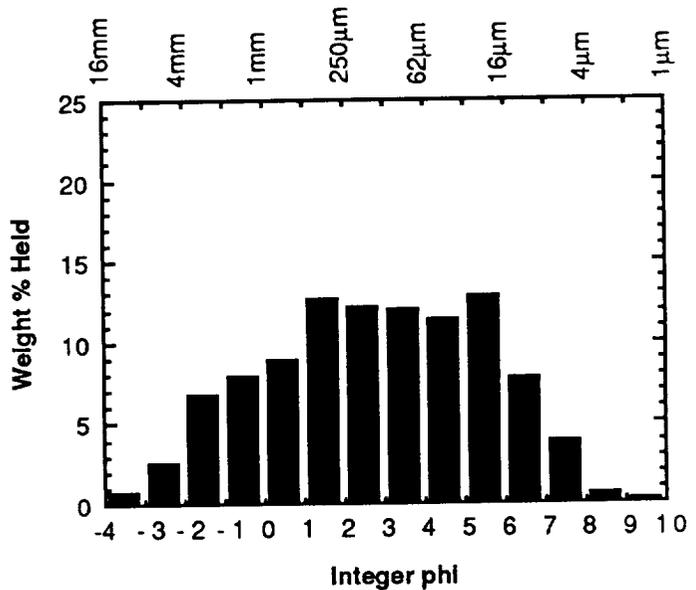
**GRAPHIC AND MOMENT MEASURES**

Mean:	2.84
Median:	2.91
Mode:	5.50
Sorting:	2.83
Skewness:	-0.04
Kurtosis:	0.85

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.66
16	-0.20
25	0.85
50	2.91
75	5.06
84	5.81
95	7.09

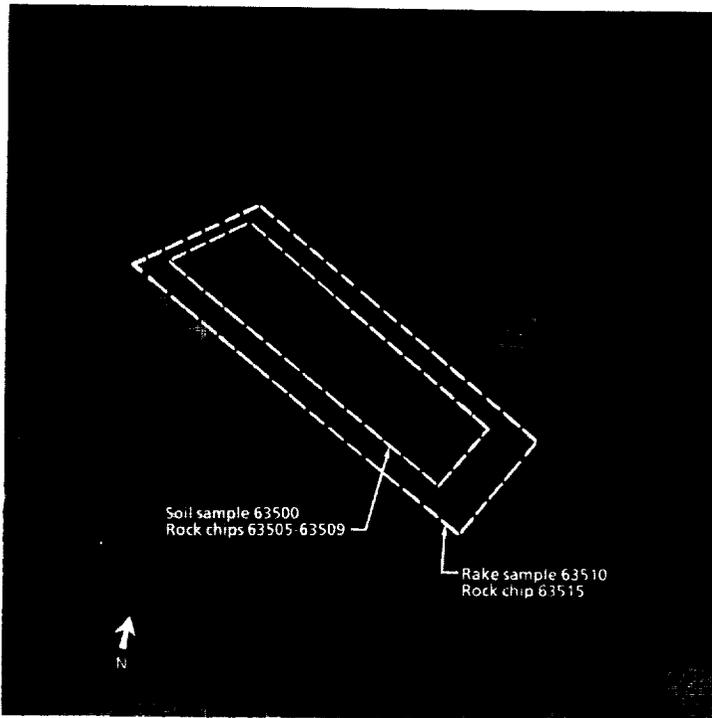
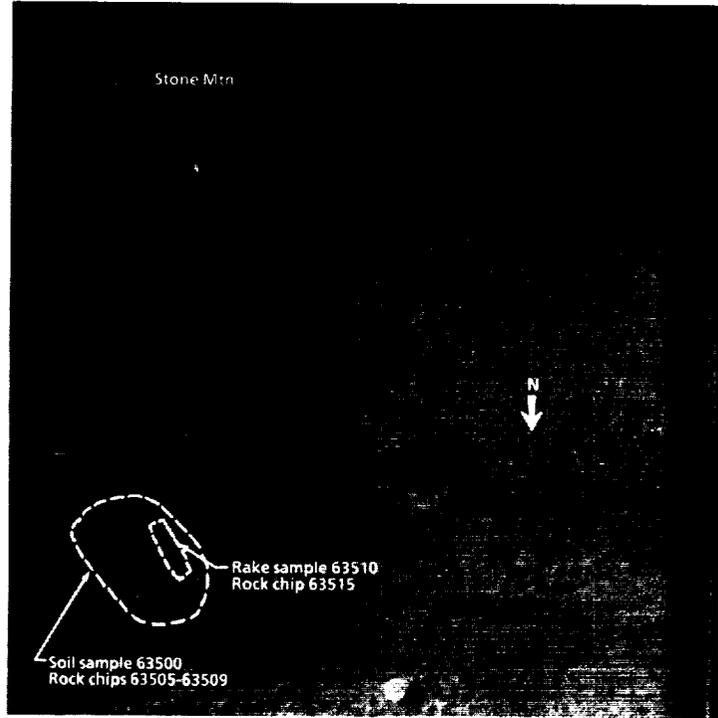
**SIZE DISTRIBUTION HISTOGRAM**



63500 Sample Environment

AS16-106-17409

Pre-sampling.



63500 Sample Environment

AS16-116-18667

Close up, after sampling  
63500, before sampling  
63510 from the same  
location.

**Soil: 63500**  
 (subsample 63501,30)  
 E.A. King PI

**LOCATION COMMENTS:**

This reference soil collected at Station 13, 5 meters west of Shadow Rock refers to rake sample 63510 collected at the same site and shadow soils 63320 and 63340 collected under the overhang of shadow rock. The sample area contains small rocks (2-10 cm) which cover 5% of the surface, fines are less compacted than soil at North Ray crater. Random 1-2 meter fresh to subdued craters are found in the local area. No crater is recognizable in the immediate sample area.

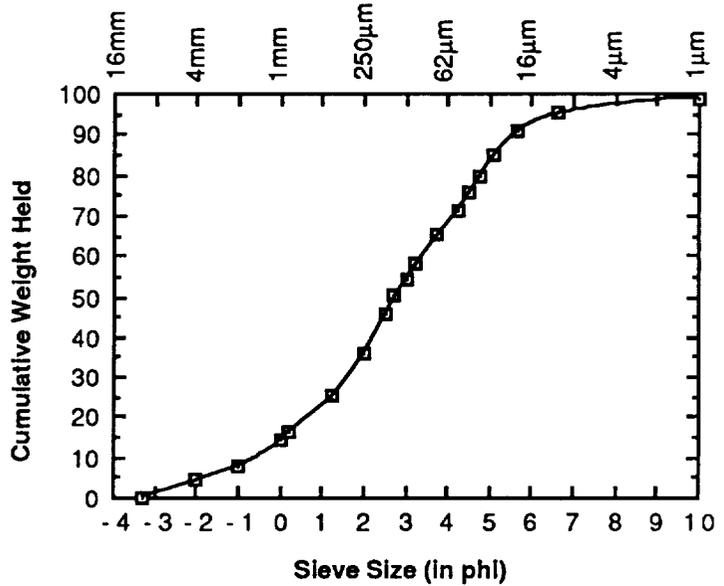
**MATURITY INDEX:**

$I_s/FeO = 46$  (submature)

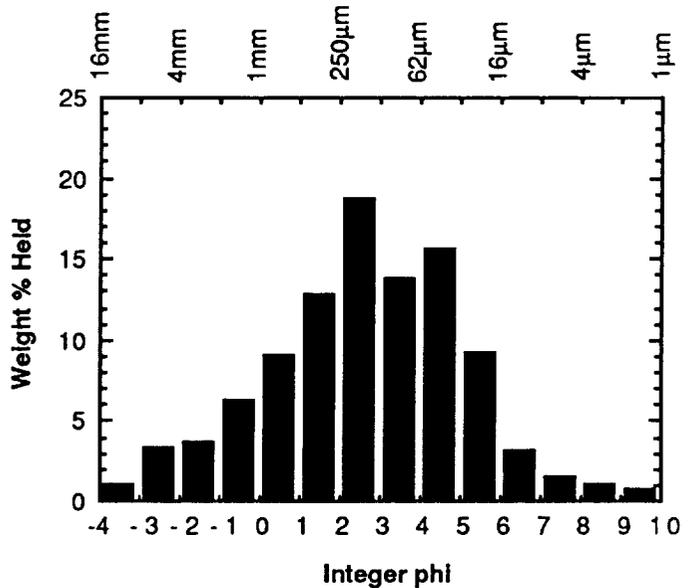
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	4.30
2000.00	3.60
1000.00	6.27
841.00	2.47
420.00	8.78
250.00	10.36
177.00	10.09
150.00	4.33
125.00	4.27
105.00	3.72
74.00	7.06
53.00	5.70
44.00	4.76
37.00	3.81
30.00	5.14
20.00	6.25
10.00	4.29
1.00	3.81

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	2.64
Median:	2.73
Mode:	2.50
Sorting:	2.47
Skewness:	-0.07
Kurtosis:	1.05

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.80
16	0.18
25	1.21
50	2.73
75	4.46
84	5.02
95	6.56

**Soil: 63500**  
(subsample 63501,34)  
D.S. McKay PI

**LOCATION COMMENTS:**

This reference soil collected at Station 13, 5 meters west of Shadow Rock refers to rake sample 63510 collected at the same site and shadow soils 63320 and 63340 collected under the overhang of shadow rock. The sample area contains small rocks (2-10 cm) which cover 5% of the surface, fines are less compacted than soil at North Ray crater. Random 1-2 meter fresh to subdued craters are found in the local area. No crater is recognizable in the immediate sample area.

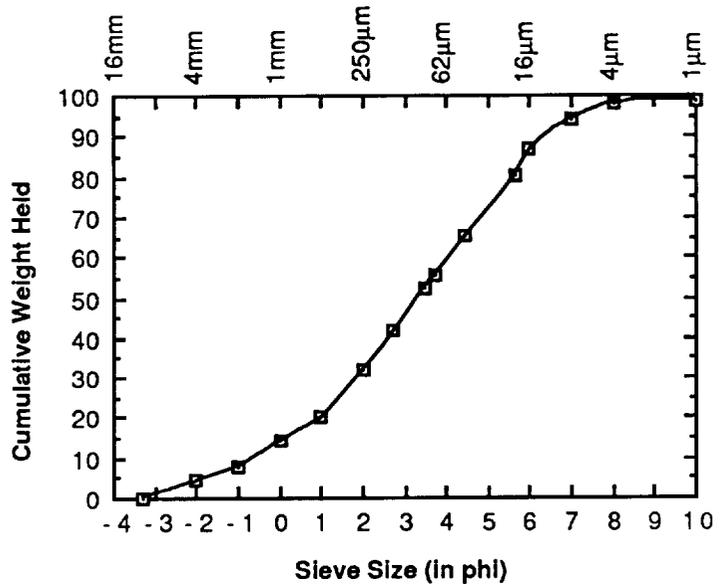
**MATURITY INDEX:**

$I_s/FeO = 46$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	4.30
2000.00	3.60
1000.00	6.27
500.00	5.88
250.00	11.99
150.00	9.48
90.00	10.95
75.00	3.32
45.00	9.81
20.00	14.77
15.60	6.61
7.80	7.25
3.90	3.80
1.00	0.97

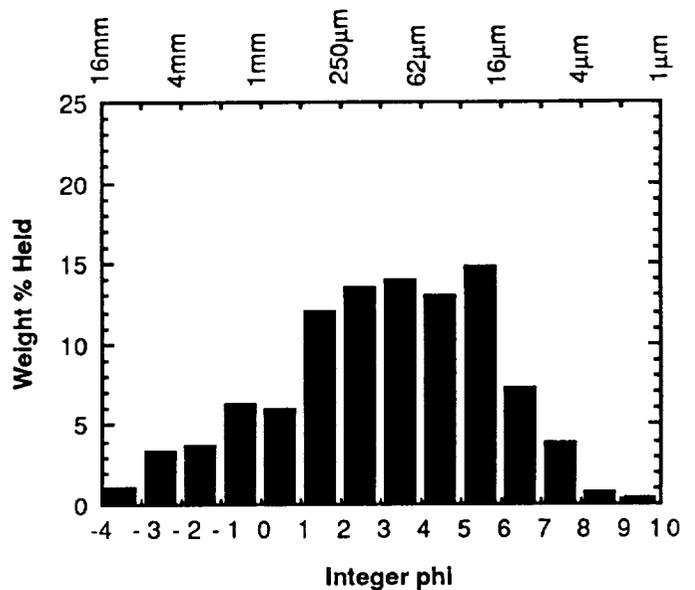
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.15
Median:	3.30
Mode:	5.50
Sorting:	2.74
Skewness:	-0.11
Kurtosis:	0.97

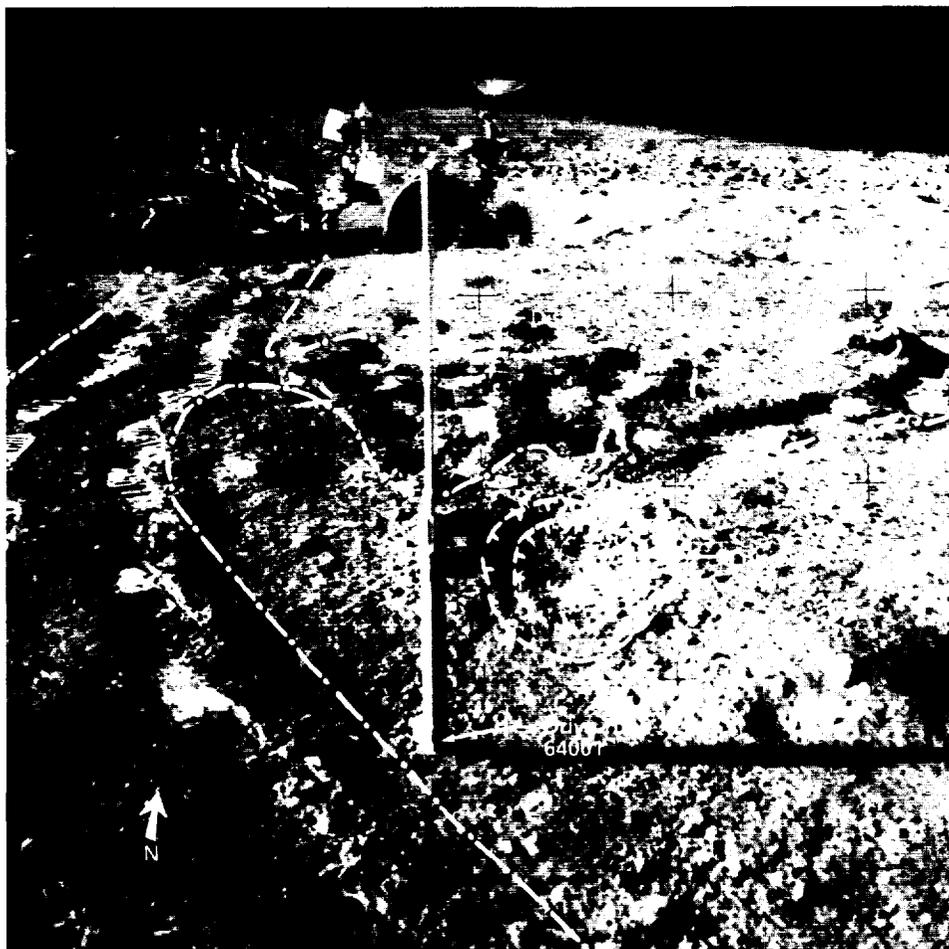
**SIZE DISTRIBUTION HISTOGRAM**



**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.80
16	0.31
25	1.43
50	3.30
75	5.22
84	5.84
95	7.17

ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



64001 / 64002 Sample  
Environment

AS16-110-17951

During sampling.

# Soil: 64001

(subsample 64001,375) (Core: depth below surface, 59.0 - 59.5 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Core drilled on Stone Mountain at Station 4, within one crater diameter of a 15 meter subdued doublet crater. The deep sections of the core may contain the best samples of typical Descartes material. The sample area has a 10-15 degree slope to the northwest. There are a few scattered cobbles 5-10 cm. Scattered craters .5 to several meters in diameter are common in the general area, there is a .5 meter crater just southwest of the drive tube.

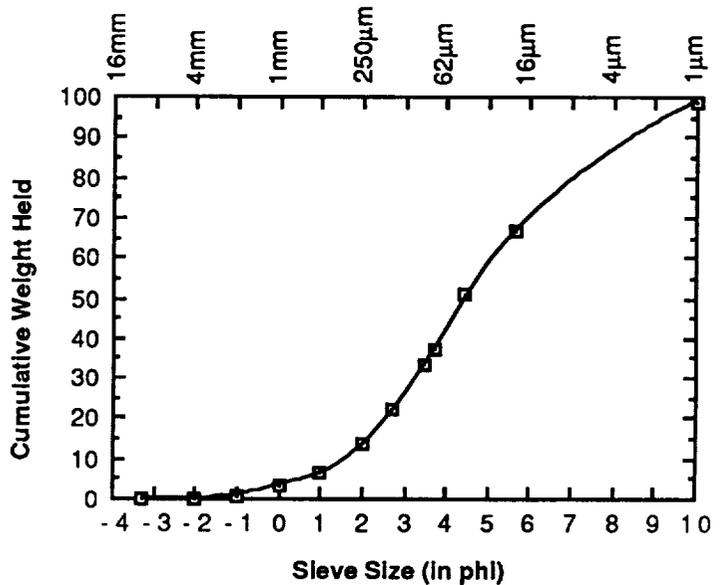
## MATURITY INDEX:

$I_p/FeO = 80$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	0.89
1000.00	2.38
500.00	2.97
250.00	7.31
150.00	8.47
90.00	11.20
75.00	4.21
45.00	13.26
20.00	16.17
1.00	32.15

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



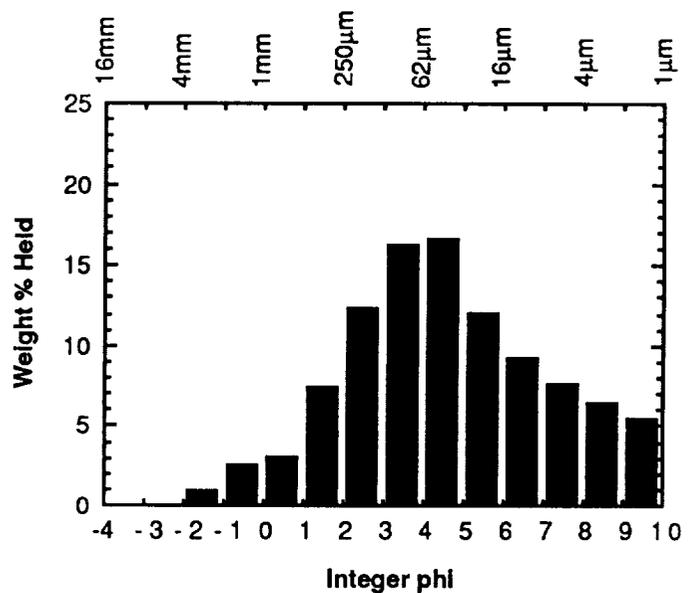
## GRAPHIC AND MOMENT MEASURES

Mean:	4.76
Median:	4.43
Mode:	4.50
Sorting:	2.66
Skewness:	0.15
Kurtosis:	1.00

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.62
16	2.24
25	2.95
50	4.43
75	6.49
84	7.62
95	9.28

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 64001

(subsample 64001,374) (Core: depth below surface, 52.0 - 52.5 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Core drilled on Stone Mountain at Station 4, within one crater diameter of a 15 meter subdued doublet crater. The deep sections of the core may contain the best samples of typical Descartes material. The sample area has a 10-15 degree slope to the northwest. There are a few scattered cobbles 5-10 cm. Scattered craters .5 to several meters in diameter are common in the general area, there is a .5 meter crater just southwest of the drive tube.

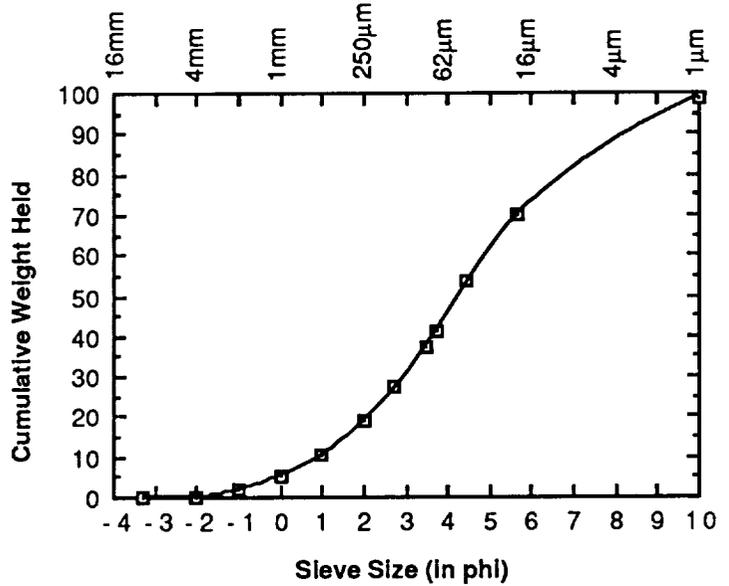
## MATURITY INDEX:

$I_3/FeO = 77$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	1.72
1000.00	3.56
500.00	5.09
250.00	8.73
150.00	8.02
90.00	10.32
75.00	4.02
45.00	12.12
20.00	16.35
1.00	29.07

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



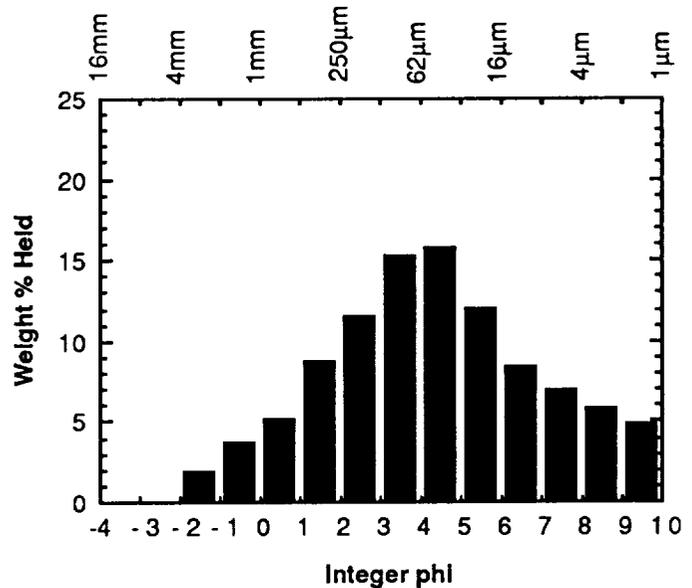
## GRAPHIC AND MOMENT MEASURES

Mean:	4.43
Median:	4.25
Mode:	4.50
Sorting:	2.83
Skewness:	0.08
Kurtosis:	1.05

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-0.07
16	1.68
25	2.56
50	4.25
75	6.19
84	7.37
95	9.20

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 64001

(subsample 64001,373) (Core: depth below surface, 46.5 - 47.0 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Core drilled on Stone Mountain at Station 4, within one crater diameter of a 15 meter subdued doublet crater. The deep sections of the core may contain the best samples of typical Descartes material. The sample area has a 10-15 degree slope to the northwest. There are a few scattered cobbles 5-10 cm. Scattered craters .5 to several meters in diameter are common in the general area, there is a .5 meter crater just southwest of the drive tube.

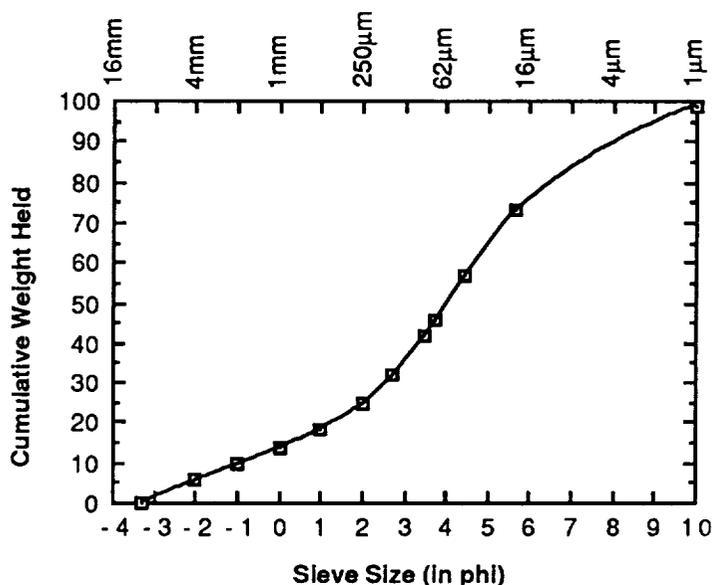
## MATURITY INDEX:

$I_g/FeO = 63$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	5.64
2000.00	3.86
1000.00	4.09
500.00	4.91
250.00	6.26
150.00	7.04
90.00	10.00
75.00	3.70
45.00	11.68
20.00	15.91
1.00	25.92

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



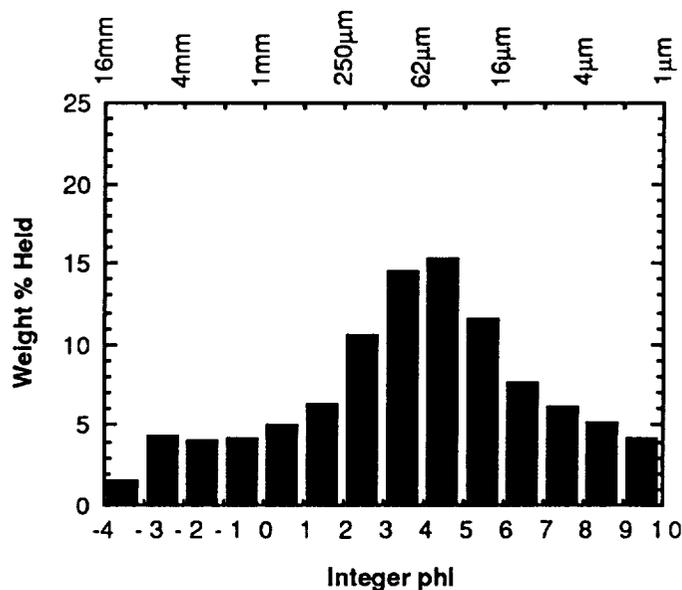
## GRAPHIC AND MOMENT MEASURES

Mean:	3.88
Median:	4.02
Mode:	4.50
Sorting:	3.35
Skewness:	-0.08
Kurtosis:	1.21

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.16
16	0.52
25	2.03
50	4.02
75	5.86
84	7.10
95	9.10

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 64001

(subsample 64001,372) (Core: depth below surface, 42.0 - 42.5 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Core drilled on Stone Mountain at Station 4, within one crater diameter of a 15 meter subdued doublet crater. The deep sections of the core may contain the best samples of typical Descartes material. The sample area has a 10-15 degree slope to the northwest. There are a few scattered cobbles 5-10 cm. Scattered craters .5 to several meters in diameter are common in the general area, there is a .5 meter crater just southwest of the drive tube.

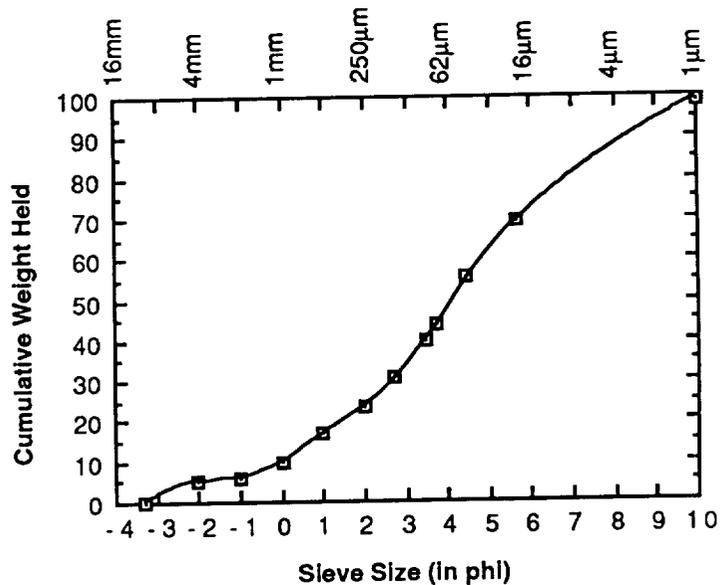
## MATURITY INDEX:

$I_s/\text{FeO} = 47$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	5.18
2000.00	0.74
1000.00	3.88
500.00	7.33
250.00	6.67
150.00	7.00
90.00	9.21
75.00	3.59
45.00	11.92
20.00	13.66
1.00	29.81

CUMULATIVE WEIGHT DISTRIBUTION CURVE



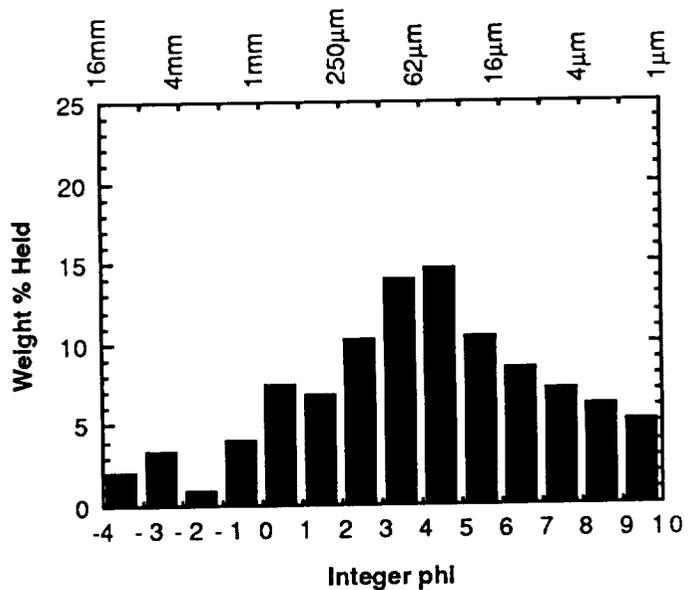
## GRAPHIC AND MOMENT MEASURES

Mean:	4.15
Median:	4.13
Mode:	4.50
Sorting:	3.39
Skewness:	-0.05
Kurtosis:	1.13

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.17
16	0.84
25	2.15
50	4.13
75	6.30
84	7.49
95	9.24

SIZE DISTRIBUTION HISTOGRAM



# Soil: 64001

(subsample 64001,371) (Core: depth below surface, 35.0 - 35.5 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Core drilled on Stone Mountain at Station 4, within one crater diameter of a 15 meter subdued doublet crater. The deep sections of the core may contain the best samples of typical Descartes material. The sample area has a 10-15 degree slope to the northwest. There are a few scattered cobbles 5-10 cm. Scattered craters .5 to several meters in diameter are common in the general area, there is a .5 meter crater just southwest of the drive tube.

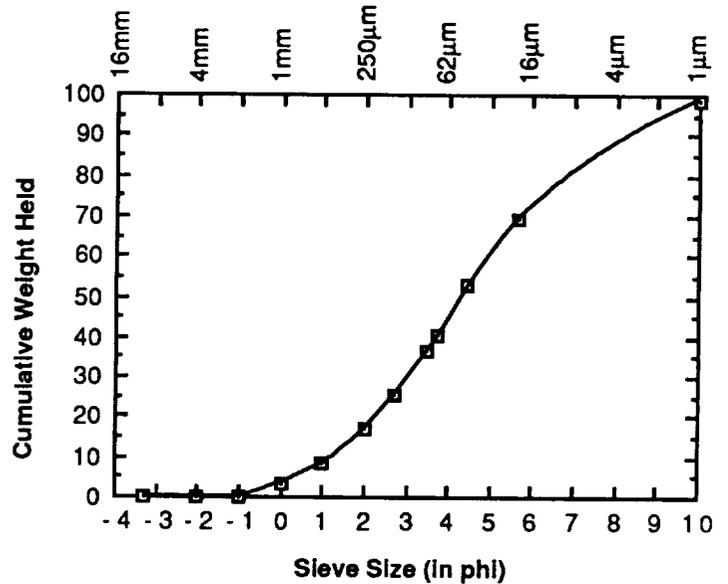
## MATURITY INDEX:

$I_g/FeO = 57$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	0.14
1000.00	3.43
500.00	5.02
250.00	8.66
150.00	8.41
90.00	10.71
75.00	4.02
45.00	12.55
20.00	16.47
1.00	29.59

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



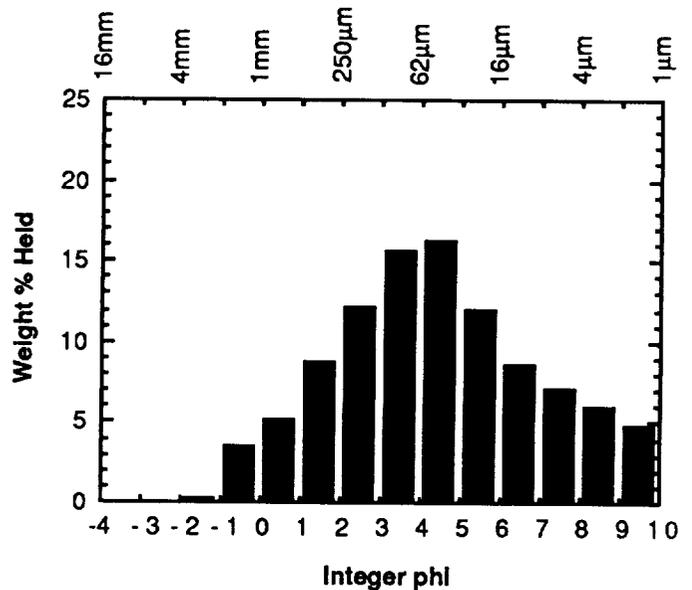
## GRAPHIC AND MOMENT MEASURES

Mean:	4.53
Median:	4.30
Mode:	4.50
Sorting:	2.73
Skewness:	0.12
Kurtosis:	1.02

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.33
16	1.87
25	2.69
50	4.30
75	6.24
84	7.42
95	9.21

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 64001

(subsample 64001,370) (Core: depth below surface, 27.5 - 28.0 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Core drilled on Stone Mountain at Station 4, within one crater diameter of a 15 meter subdued doublet crater. The deep sections of the core may contain the best samples of typical Descartes material. The sample area has a 10-15 degree slope to the northwest. There are a few scattered cobbles 5-10 cm. Scattered craters .5 to several meters in diameter are common in the general area, there is a .5 meter crater just southwest of the drive tube.

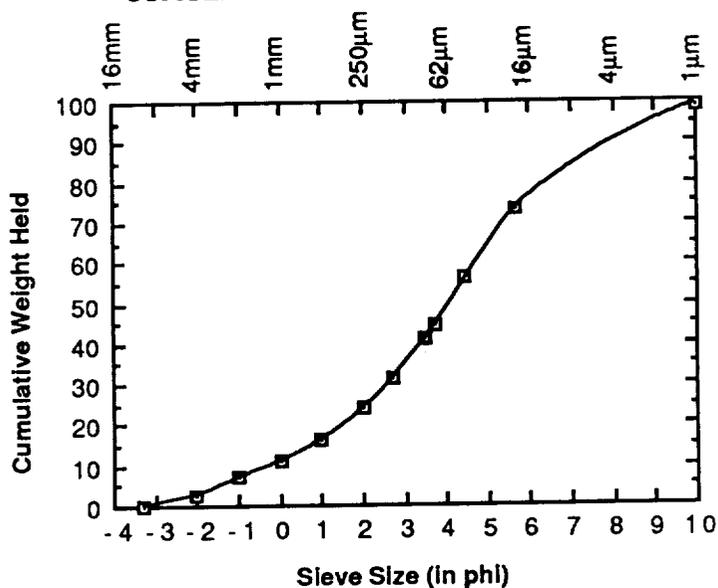
## MATURITY INDEX:

$I_s/FcO = 65$  (mature)

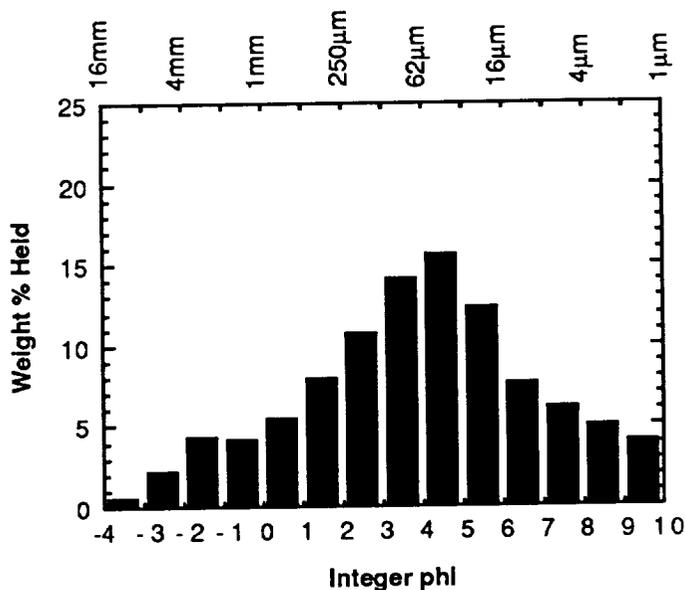
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.70
2000.00	4.27
1000.00	4.04
500.00	5.39
250.00	7.81
150.00	7.35
90.00	9.55
75.00	3.63
45.00	11.59
20.00	17.16
1.00	25.50

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	4.02
Median:	4.07
Mode:	4.50
Sorting:	3.13
Skewness:	-0.04
Kurtosis:	1.16

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-1.46
16	0.94
25	2.09
50	4.07
75	5.81
84	7.05
95	9.08

# Soil: 64002

subsample 64002,266) (Core: depth below surface, 24.0 - 24.5 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 64001 / 64002 collected on Stone Mountain at Station 4, within one crater diameter of a 15 meter subdued doublet crater. The deep sections of the core may contain the best samples of typical Descartes material. The sample area has a 10-15 degree slope to the northwest. There are a few scattered cobbles 5-10 cm. Scattered craters .5 to several meters in diameter are common in the general area, there is a .5 meter crater just southwest of the drive tube.

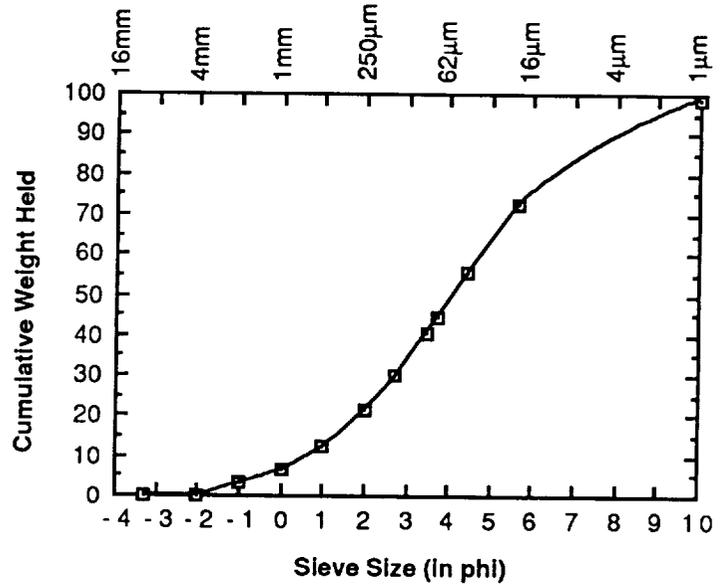
## MATURITY INDEX:

$I_s/FcO = 76$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	2.99
1000.00	3.43
500.00	6.07
250.00	9.18
150.00	8.54
90.00	10.60
75.00	3.82
45.00	11.16
20.00	16.91
1.00	26.30

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



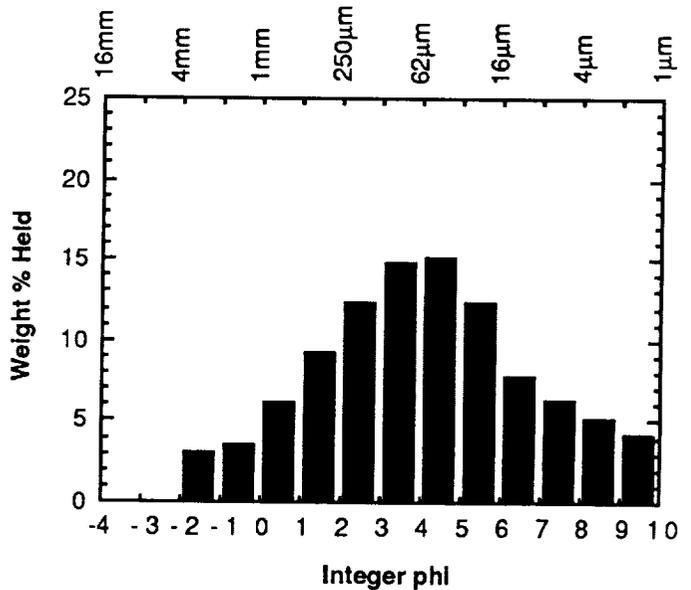
## GRAPHIC AND MOMENT MEASURES

Mean:	4.21
Median:	4.09
Mode:	4.50
Sorting:	2.86
Skewness:	0.06
Kurtosis:	1.08

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-0.39
16	1.43
25	2.31
50	4.09
75	5.90
84	7.12
95	9.11

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 64002

(subsample 64002,265) (Core: depth below surface, 18.0 - 18.5 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 64001 / 64002 collected on Stone Mountain at Station 4, within one crater diameter of a 15 meter subdued doublet crater. The deep sections of the core may contain the best samples of typical Descartes material. The sample area has a 10-15 degree slope to the northwest. There are a few scattered cobbles 5-10 cm. Scattered craters .5 to several meters in diameter are common in the general area, there is a .5 meter crater just southwest of the drive tube.

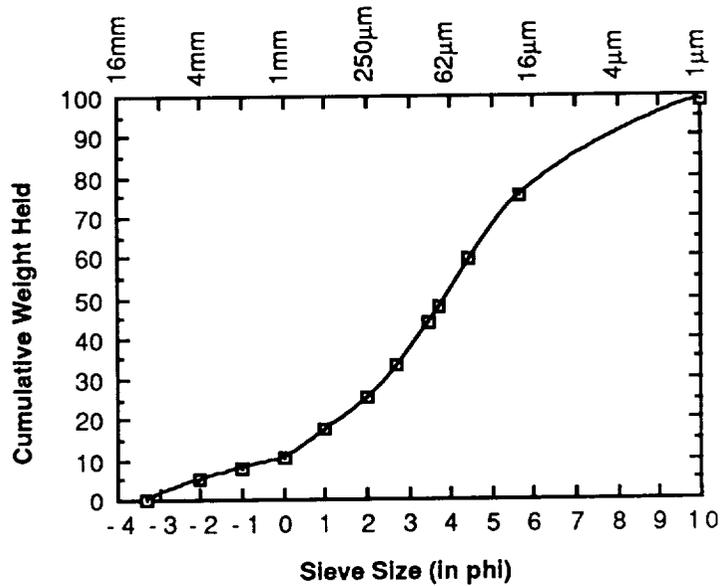
## MATURITY INDEX:

$I_s/FeO = 53$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	5.03
2000.00	2.84
1000.00	2.55
500.00	7.06
250.00	7.83
150.00	7.79
90.00	10.65
75.00	3.83
45.00	12.12
20.00	15.66
1.00	23.64

CUMULATIVE WEIGHT DISTRIBUTION CURVE



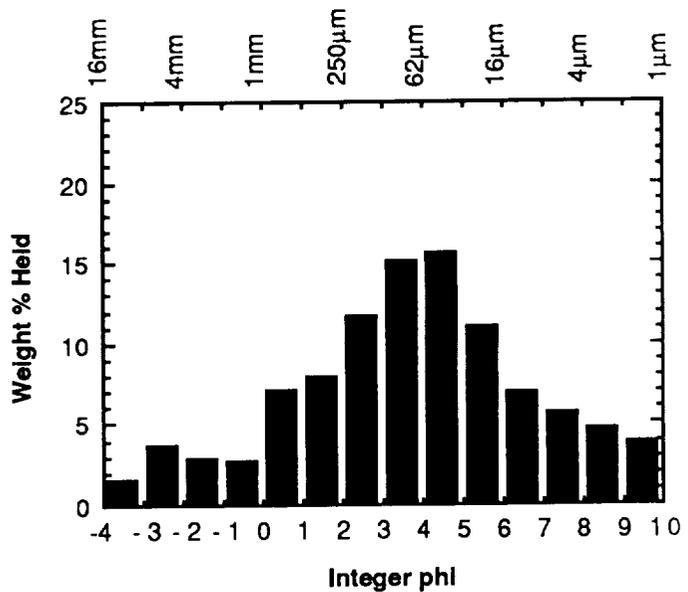
## GRAPHIC AND MOMENT MEASURES

Mean:	3.85
Median:	3.89
Mode:	4.50
Sorting:	3.19
Skewness:	-0.04
Kurtosis:	1.24

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.01
16	0.80
25	1.97
50	3.89
75	5.60
84	6.86
95	9.02

SIZE DISTRIBUTION HISTOGRAM



# Soil: 64002

(subsample 64002,264) (Core: depth below surface, 14.5 - 15.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 64001 / 64002 collected on Stone Mountain at Station 4, within one crater diameter of a 15 meter subdued doublet crater. The deep sections of the core may contain the best samples of typical Descartes material. The sample area has a 10-15 degree slope to the northwest. There are a few scattered cobbles 5-10 cm. Scattered craters .5 to several meters in diameter are common in the general area, there is a .5 meter crater just southwest of the drive tube.

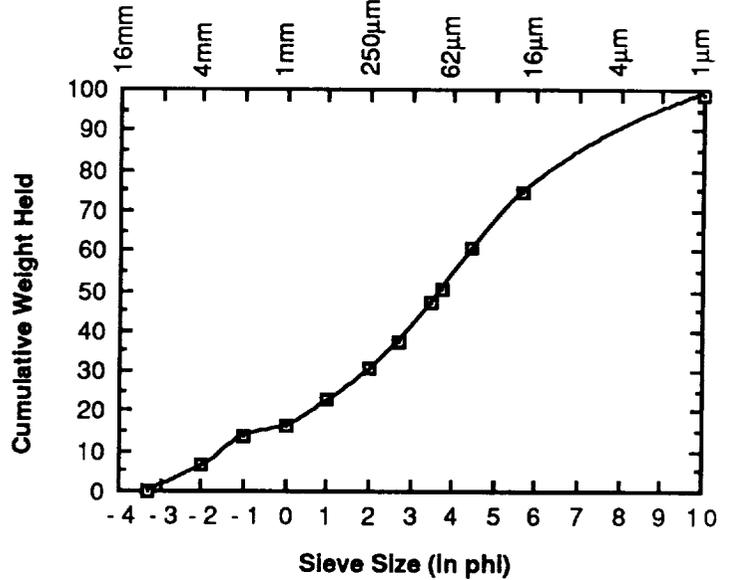
## MATURITY INDEX:

$I_s/FeO = 60$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	6.25
2000.00	7.59
1000.00	2.21
500.00	6.50
250.00	7.88
150.00	7.13
90.00	9.21
75.00	3.78
45.00	10.16
20.00	14.02
1.00	24.27

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



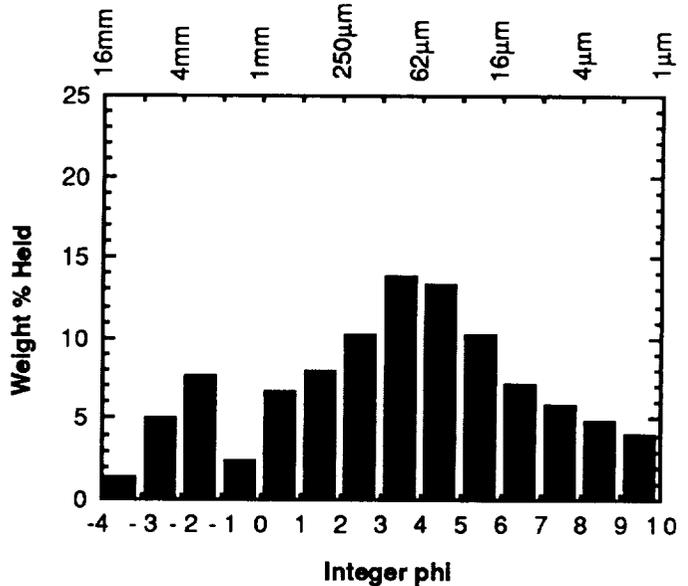
## GRAPHIC AND MOMENT MEASURES

Mean:	3.54
Median:	3.70
Mode:	3.50
Sorting:	3.45
Skewness:	-0.06
Kurtosis:	1.06

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.23
16	-0.02
25	1.33
50	3.70
75	5.68
84	6.95
95	9.05

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 64002

(subsample 64002,263) (Core: depth below surface, 10.0 - 10.5 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

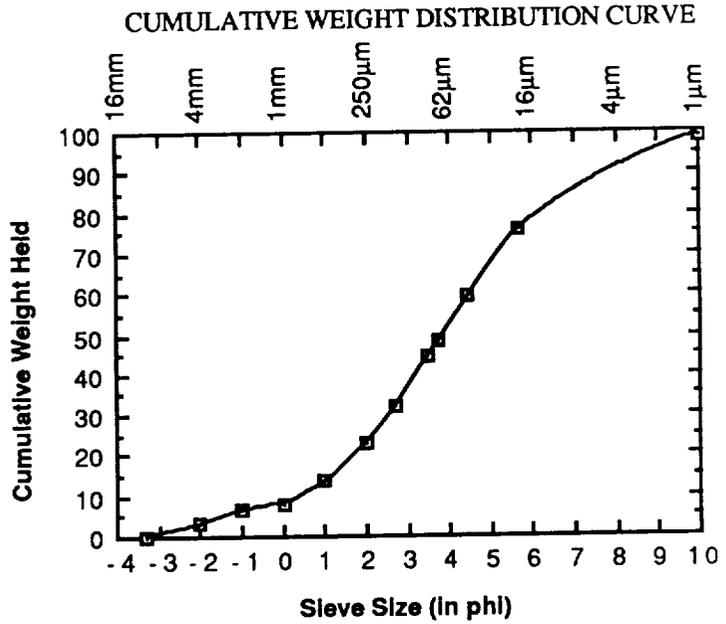
Drive tube 64001 / 64002 collected on Stone Mountain at Station 4, within one crater diameter of a 15 meter subdued doublet crater. The deep sections of the core may contain the best samples of typical Descartes material. The sample area has a 10-15 degree slope to the northwest. There are a few scattered cobbles 5-10 cm. Scattered craters .5 to several meters in diameter are common in the general area, there is a .5 meter crater just southwest of the drive tube.

## MATURITY INDEX:

$I_3/FeO = 102$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.95
2000.00	3.40
1000.00	1.76
500.00	5.41
250.00	9.38
150.00	9.29
90.00	12.06
75.00	4.09
45.00	11.21
20.00	16.13
1.00	23.33

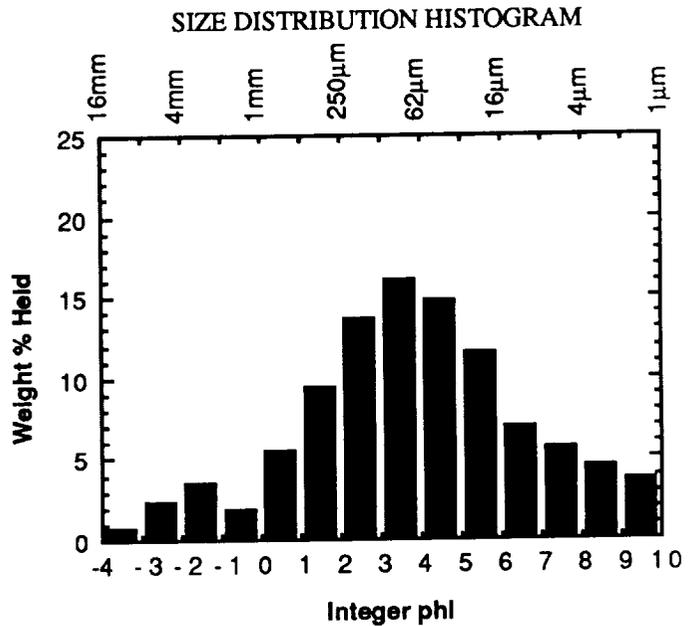


## GRAPHIC AND MOMENT MEASURES

Mean:	4.00
Median:	3.84
Mode:	3.50
Sorting:	2.96
Skewness:	0.04
Kurtosis:	1.26

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-1.42
16	1.32
25	2.19
50	3.84
75	5.58
84	6.83
95	9.00



*ed*

# Soil: 64002

(subsample 64002,262) (Core: depth below surface, 5.0 - 5.5 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 64001 / 64002 collected on Stone Mountain at Station 4, within one crater diameter of a 15 meter subdued doublet crater. The deep sections of the core may contain the best samples of typical Descartes material. The sample area has a 10-15 degree slope to the northwest. There are a few scattered cobbles 5-10 cm. Scattered craters .5 to several meters in diameter are common in the general area, there is a .5 meter crater just southwest of the drive tube.

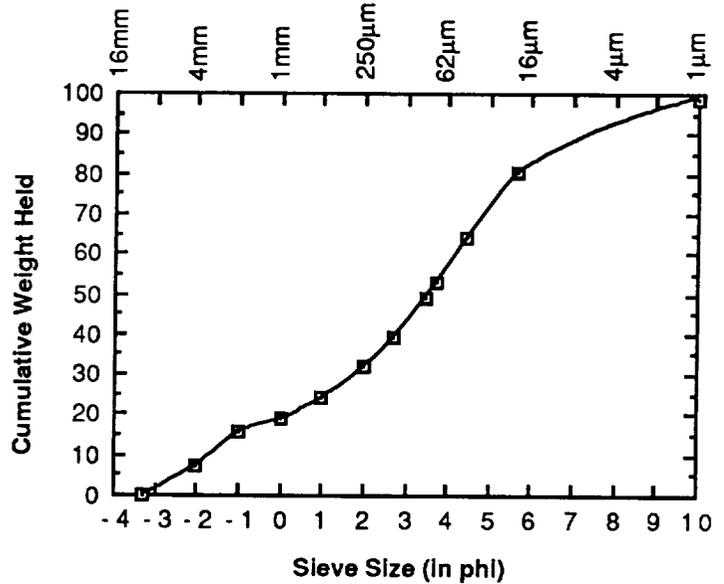
## MATURITY INDEX:

$I_g/FeO = 76$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	7.51
2000.00	8.21
1000.00	2.97
500.00	5.53
250.00	7.77
150.00	7.52
90.00	9.77
75.00	3.80
45.00	11.20
20.00	16.17
1.00	18.54

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



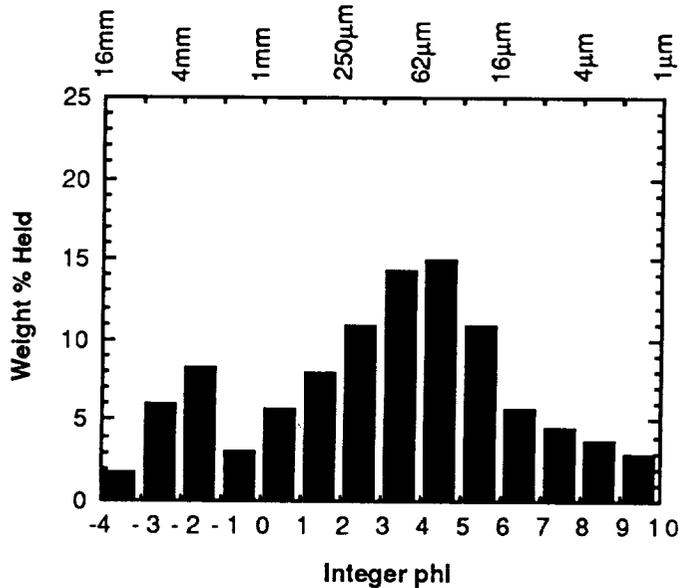
## GRAPHIC AND MOMENT MEASURES

Mean:	2.94
Median:	3.52
Mode:	4.50
Sorting:	3.47
Skewness:	-0.15
Kurtosis:	1.12

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.40
16	-0.92
25	1.12
50	3.52
75	5.21
84	6.22
95	8.76

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 64002

(subsample 64002,261) (Core: depth below surface, 0.0 - 0.1 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 64001 / 64002 collected on Stone Mountain at Station 4, within one crater diameter of a 15 meter subdued doublet crater. The deep sections of the core may contain the best samples of typical Descartes material. The sample area has a 10-15 degree slope to the northwest. There are a few scattered cobbles 5-10 cm. Scattered craters .5 to several meters in diameter are common in the general area, there is a .5 meter crater just southwest of the drive tube.

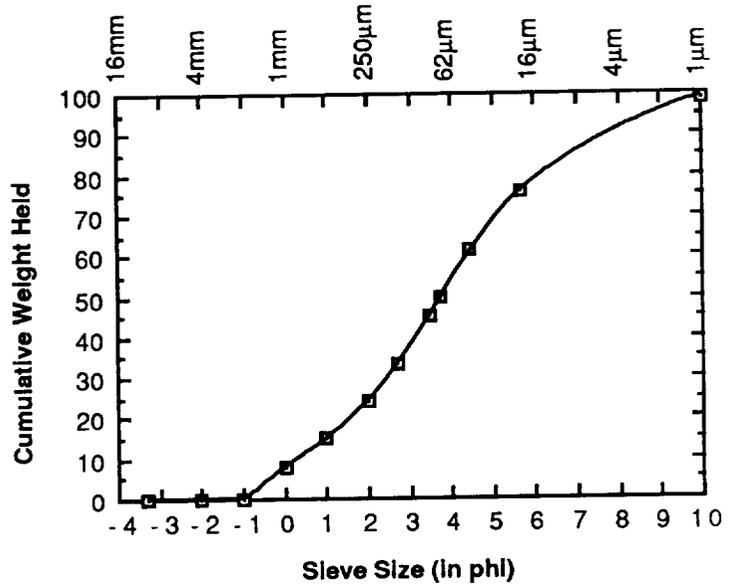
## MATURITY INDEX:

$I_s/FeO = 92$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
2000.00	0.00
1000.00	7.91
500.00	7.10
250.00	9.40
150.00	9.14
90.00	11.51
75.00	4.75
45.00	11.32
20.00	14.92
1.00	22.95

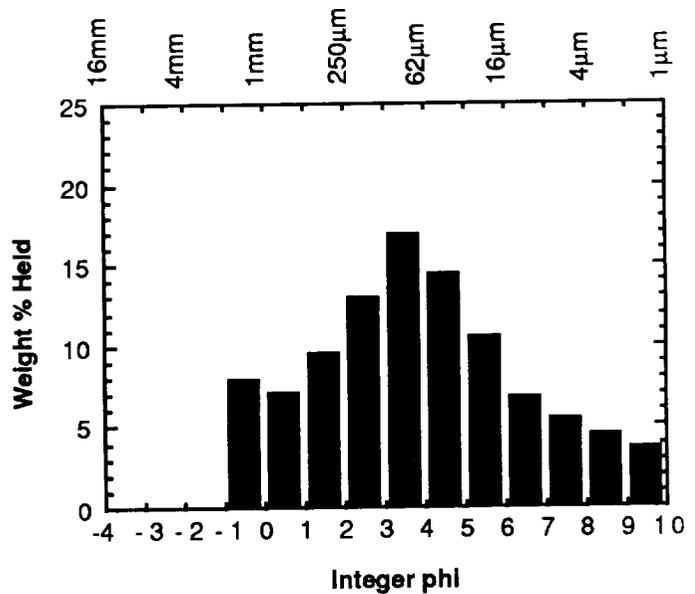
## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## GRAPHIC AND MOMENT MEASURES

Mean:	3.89
Median:	3.75
Mode:	3.50
Sorting:	2.84
Skewness:	0.10
Kurtosis:	1.10

## SIZE DISTRIBUTION HISTOGRAM



## MOMENT MEASURE DATA

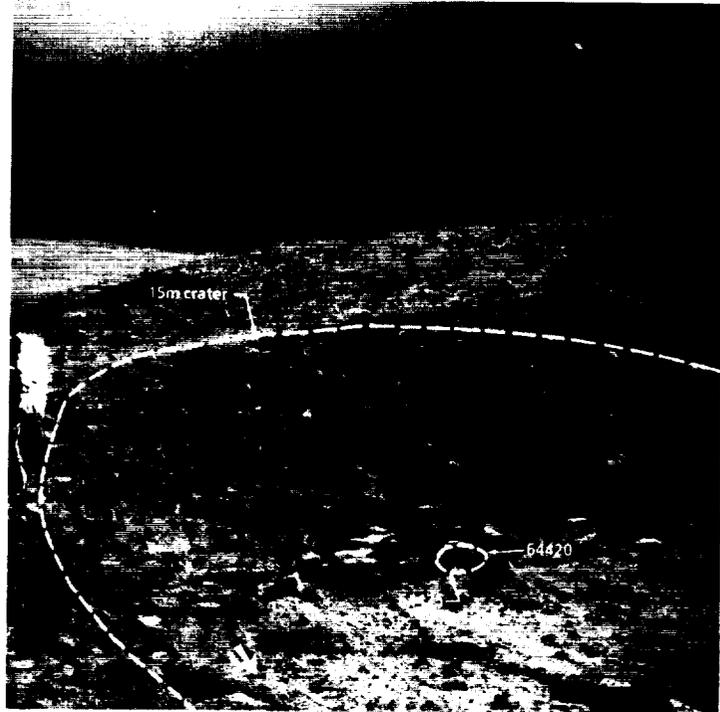
Wt % held	$\phi$ size
5	-0.37
16	1.12
25	2.05
50	3.75
75	5.53
84	6.79
95	8.99

ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH

64420 Sample Environment

AS16-110-17962

Post-sampling.



64420 Sample Environment

AS16-107-17461

Close up, post-sampling.

# Soil: 64420

(subsample 64421,23)  
E.A. King PI

**LOCATION COMMENTS:**

Soil 64420 was collected with breccia 64475 at Station 4A near Cinco B crater, 5 meters from the LRV on the floor of a subdued 15 meter crater. The soil was taken from the bottom of a 25 cm trench. At the sample area, 5-10 cm pebbles are abundant, 20-40 cm cobbles are common and meter size blocks are sparsely scattered. Scattered craters up to several meters in size are common in the general area. This regolith is probably South Ray ejecta mixed with underlying Descartes material.

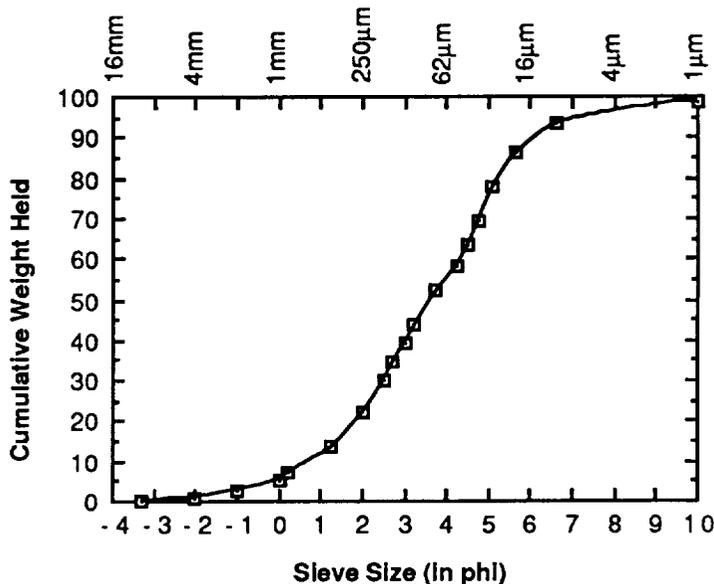
**MATURITY INDEX:**

$I_s/FeO = 83$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.93
2000.00	1.70
1000.00	2.79
841.00	1.89
420.00	6.25
250.00	8.59
177.00	7.99
150.00	4.63
125.00	4.18
105.00	4.61
74.00	8.71
53.00	5.85
44.00	5.39
37.00	5.95
30.00	8.11
20.00	8.55
10.00	7.34
1.00	5.54

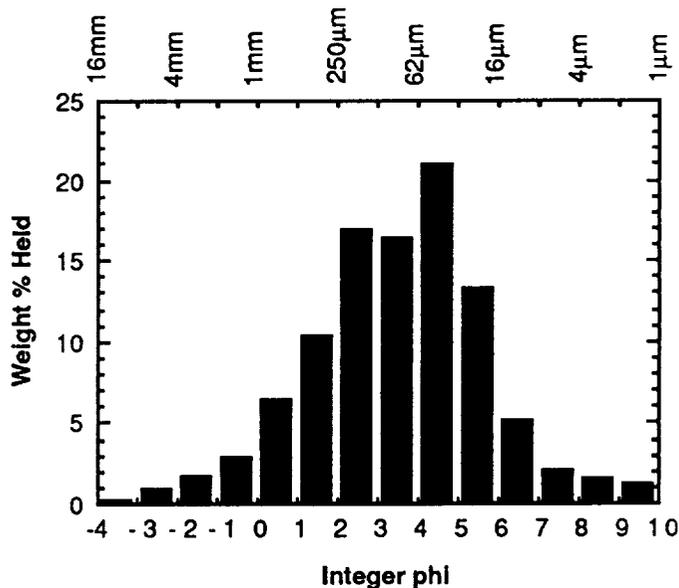
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.53
Median:	3.61
Mode:	4.50
Sorting:	2.11
Skewness:	-0.04
Kurtosis:	1.10

**SIZE DISTRIBUTION HISTOGRAM**



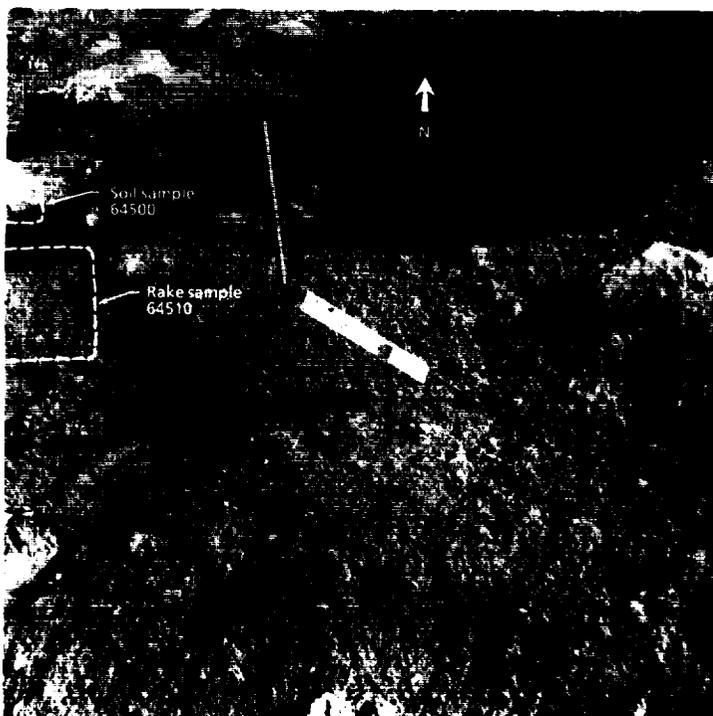
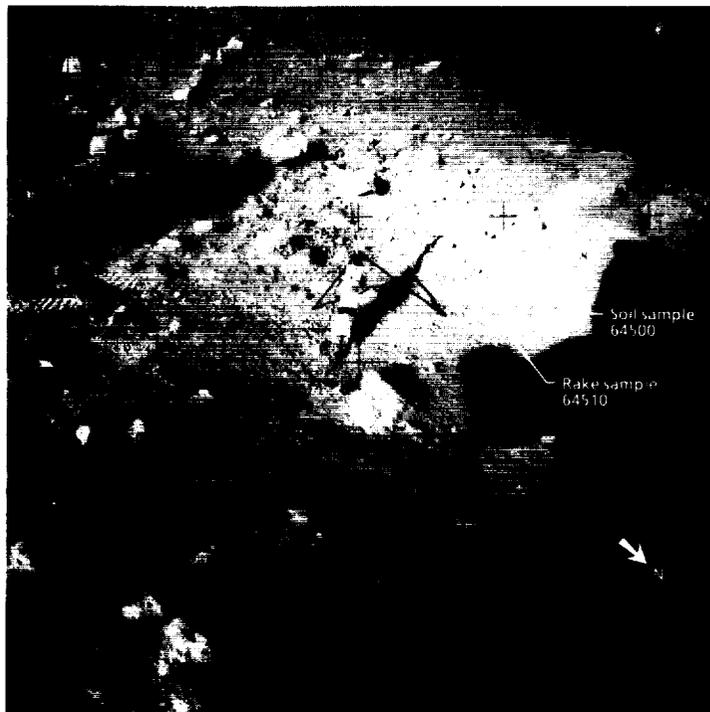
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.10
16	1.51
25	2.19
50	3.61
75	4.96
84	5.45
95	7.31

64500 Sample Environment

AS16-110-17947

Pre-sampling.



64500 Sample Environment

AS16-107-17448

Close up, pre-sampling.

**Soil: 64500**  
(subsample 64501,4)  
E.A. King PI

**LOCATION COMMENTS:**

Soil 64500 and rake 64510 were collected at Station 4A in the vicinity of Cinco B crater, near the rim of a subdued 15 meter crater. The sample area slopes 10-15 degrees to the northwest off Stone Mountain, surface fragments up to 10 cm are abundant, up to 40 cm are common, up to 1 meter sparse. Scattered craters .5 to several meters are in the general area, very subdued and barely visible smaller craters are in the local area. The gray surface is underlain by a white layer.

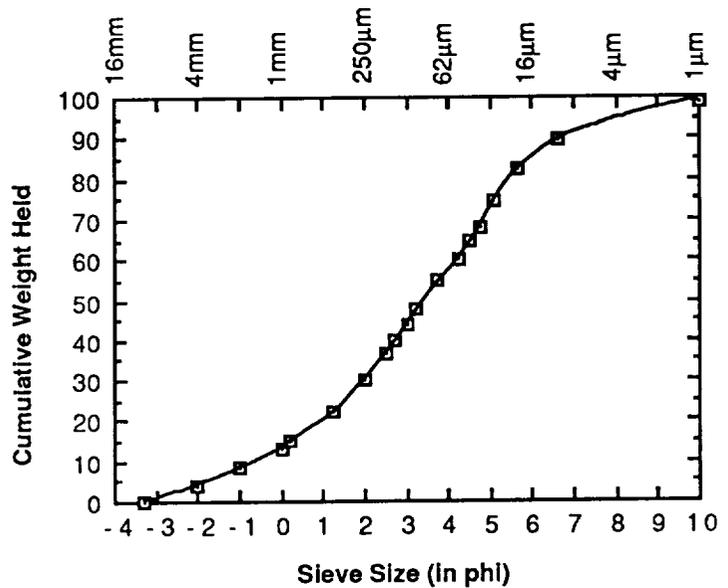
**MATURITY INDEX:**

$I_g/FeO = 61$  (mature)

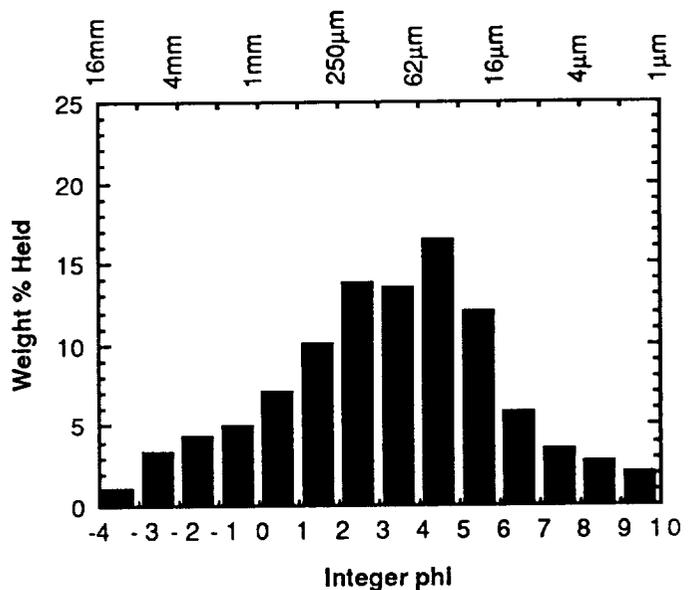
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	4.18
2000.00	4.17
1000.00	4.91
841.00	2.01
420.00	6.91
250.00	8.07
177.00	6.37
150.00	3.34
125.00	3.97
105.00	4.04
74.00	6.70
53.00	5.33
44.00	4.45
37.00	3.26
30.00	7.12
20.00	7.56
10.00	7.30
1.00	9.33

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.19
Median:	3.39
Mode:	4.50
Sorting:	2.89
Skewness:	-0.07
Kurtosis:	1.16

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.78
16	0.35
25	1.54
50	3.39
75	5.07
84	5.82
95	8.25

**Soil: 64500**  
(subsample 64501,6)  
D.S. McKay PI

**LOCATION COMMENTS:**

Soil 64500 and rake 64510 were collected at Station 4A in the vicinity of Cinco B crater, near the rim of a subdued 15 meter crater. The sample area slopes 10-15 degrees to the northwest off Stone Mountain, surface fragments up to 10 cm are abundant, up to 40 cm are common, up to 1 meter sparse. Scattered craters .5 to several meters are in the general area, very subdued and barely visible smaller craters are in the local area. The gray surface is underlain by a white layer.

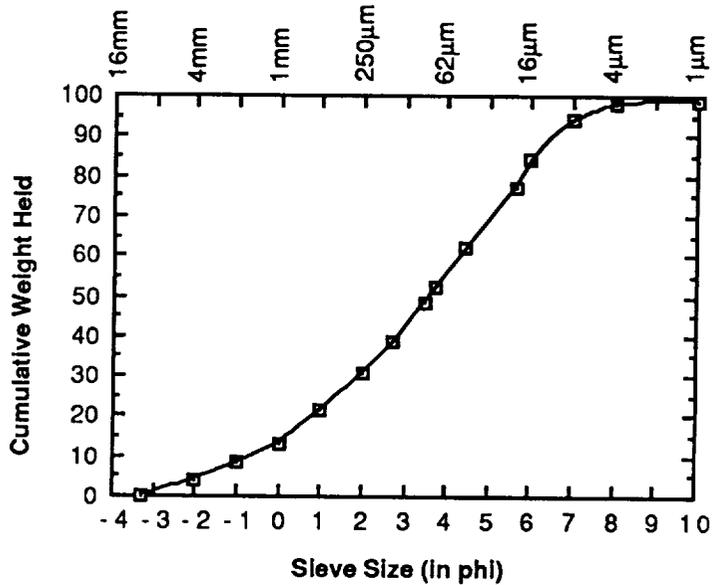
**MATURITY INDEX:**

$I_3/FeO = 61$  (mature)

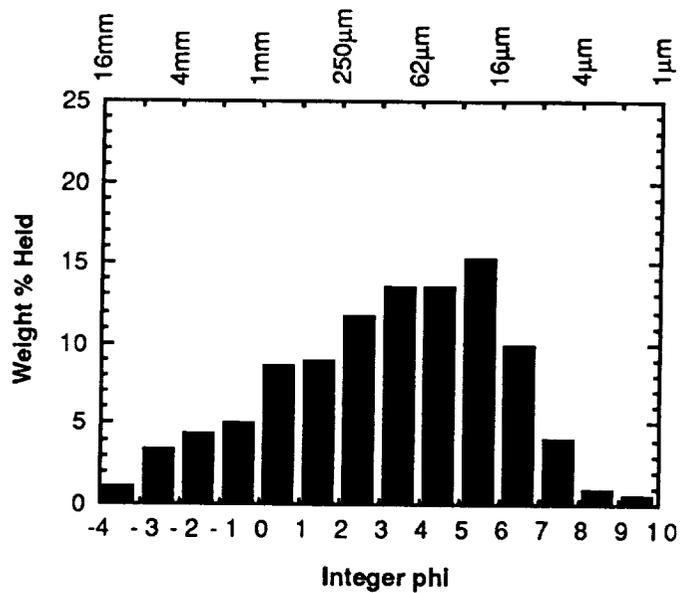
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	4.18
2000.00	4.17
1000.00	4.91
500.00	8.56
250.00	8.77
150.00	8.09
90.00	9.93
75.00	3.44
45.00	9.92
20.00	15.47
15.60	6.70
7.80	9.79
3.90	3.86
1.00	1.21

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

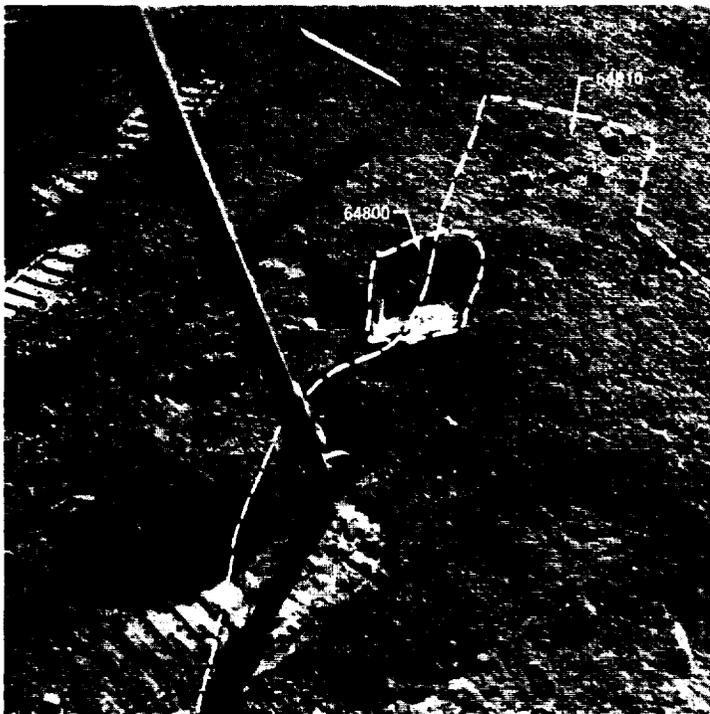
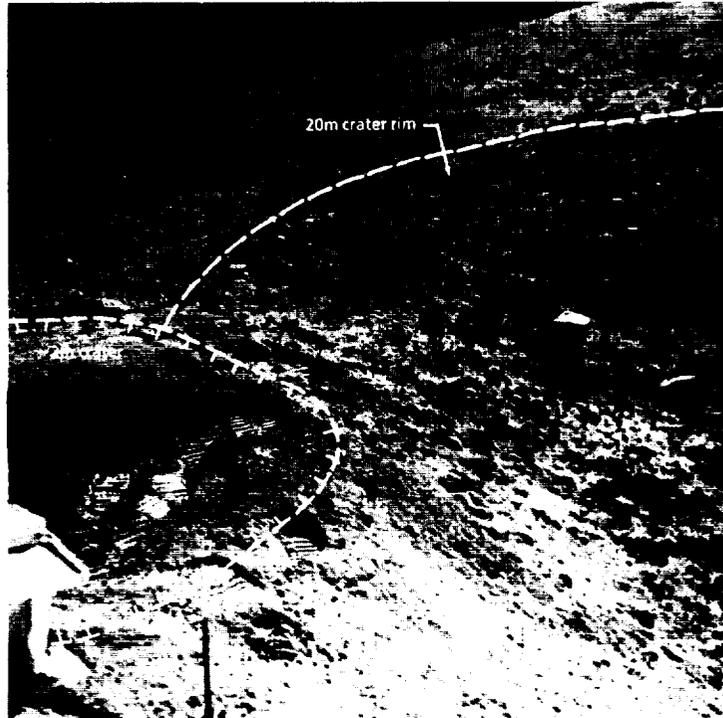
Mean:	3.30
Median:	3.58
Mode:	5.50
Sorting:	2.78
Skewness:	-0.17
Kurtosis:	0.90

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.78
16	0.33
25	1.37
50	3.58
75	5.47
84	5.99
95	7.23

64800 Sample Environment  
AS16-107-17475

Sample location of 64800 is  
in the immediate  
foreground (see top of  
gnomon).



64800 Sample Environment  
AS16-107-17465

Close up, after sampling  
64800 and before sampling  
64810.

**Soil: 64800**  
(subsample 64801,14)  
E.A. King PI

**LOCATION COMMENTS:**

Surface soil 64800 accompanies rake 64810, collected at Station 4B on the rim of a 20 meter crater. Blocks and cobbles cover 80-90% of the northeast wall of the main crater, elsewhere the surface is relatively smooth with scattered cobbles. The fines are loose, numerous small craters are found in the sample area.

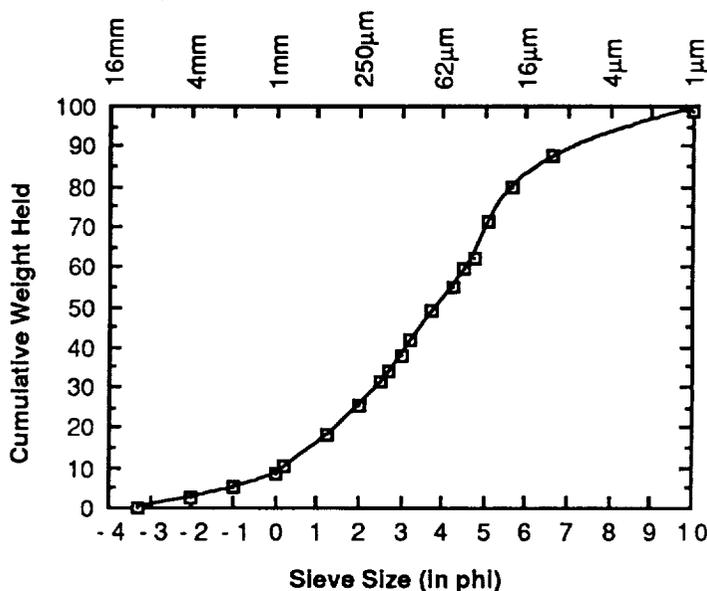
**MATURITY INDEX:**

$I_s/FeO = 71$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.48
2000.00	2.55
1000.00	3.45
841.00	2.08
420.00	7.67
250.00	7.15
177.00	5.74
150.00	2.92
125.00	3.75
105.00	4.17
74.00	6.98
53.00	5.96
44.00	4.69
37.00	2.49
30.00	9.27
20.00	8.53
10.00	7.55
1.00	11.55

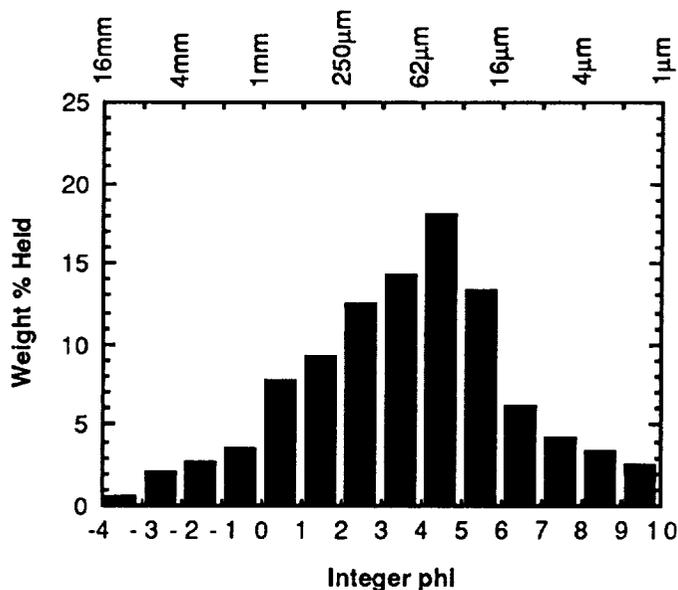
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.64
Median:	3.84
Mode:	4.50
Sorting:	2.74
Skewness:	-0.07
Kurtosis:	1.19

**SIZE DISTRIBUTION HISTOGRAM**



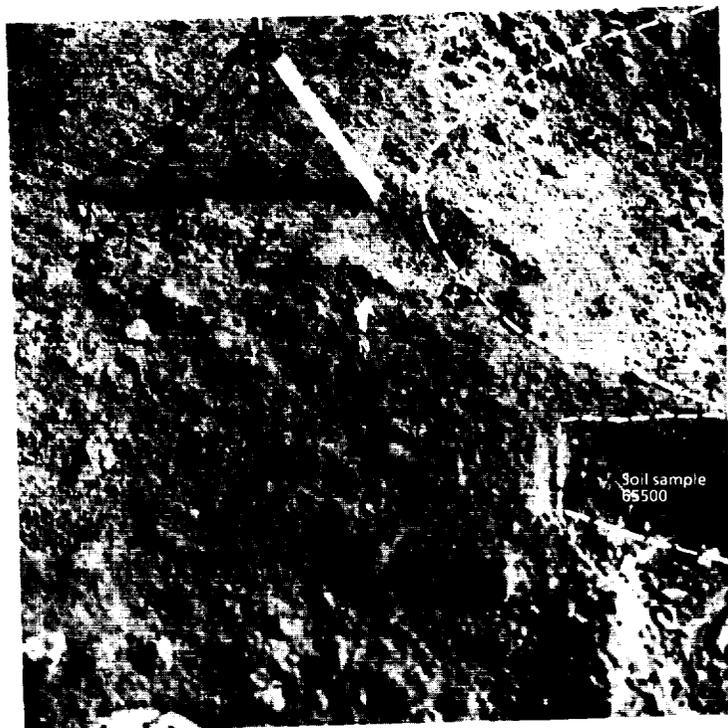
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.01
16	0.97
25	1.96
50	3.84
75	5.26
84	6.11
95	8.56

65500 Sample Environment

AS16-110-18020

During sampling.



65500 Sample Environment

AS16-107-17493

Close up, pre-sampling

**Soil: 65500**  
(subsample 65501,2)  
E.A. King PI

**LOCATION COMMENTS:**

Soil 65500 accompanies rake sample 65510 collected at Station 5 near the rim of a 20 meter crater. The sample area has no blocks larger than 30 cm, it is a mostly sandy surface. The fines are loose with a gray surface and whitish subsurface. Numerous small craters are superposed on the 20 meter crater. Friable clods are included in the sample.

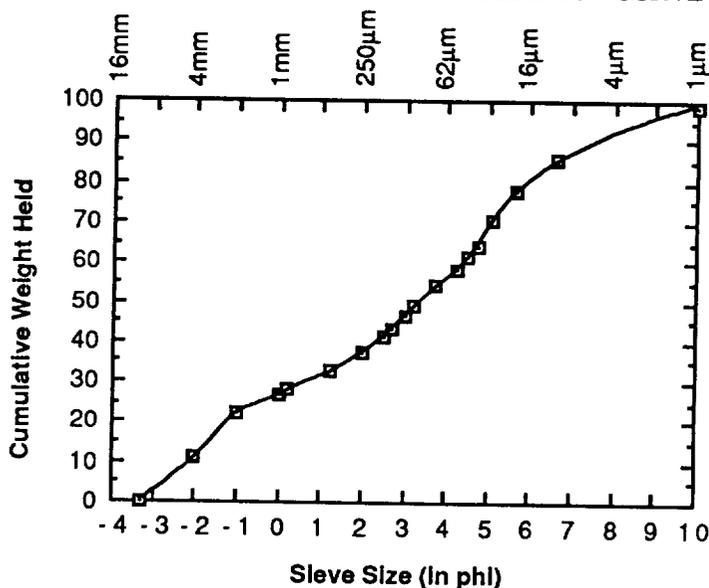
**MATURITY INDEX:**

$I_g/FeO = 38$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	10.84
2000.00	11.21
1000.00	4.58
841.00	1.41
420.00	4.44
250.00	4.83
177.00	4.01
150.00	2.15
125.00	2.71
105.00	2.68
74.00	5.35
53.00	4.02
44.00	3.50
37.00	2.47
30.00	6.44
20.00	7.03
10.00	7.66
1.00	13.67

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



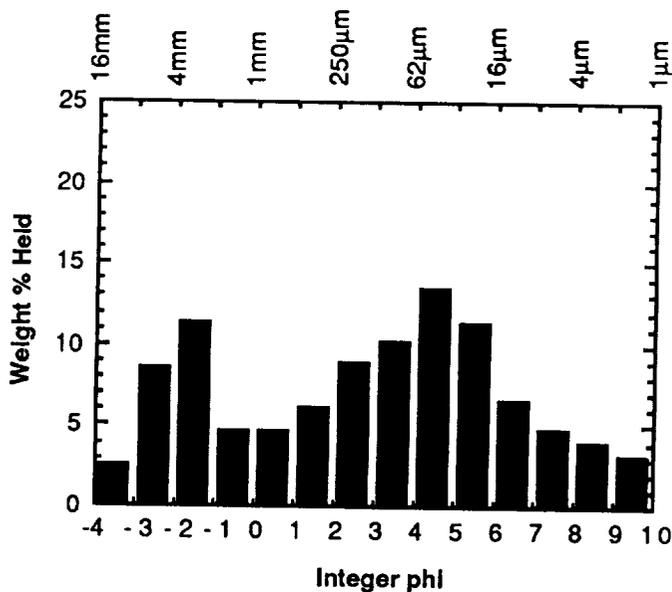
**GRAPHIC AND MOMENT MEASURES**

Mean:	2.75
Median:	3.36
Mode:	4.50
Sorting:	3.73
Skewness:	-0.14
Kurtosis:	0.82

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.67
16	-1.53
25	-0.35
50	3.36
75	5.39
84	6.43
95	8.79

**SIZE DISTRIBUTION HISTOGRAM**





65700 Sample Environment

AS16-110-18016

Pre-sampling.

**Soil: 65700**  
(subsample 65701,5)  
E.A. King PI

**LOCATION COMMENTS:**

65700 and 65900 are surface soils to accompany the rake samples at Station 5. Samples were collected on the interior wall of a 20 meter crater, very close to the rim. The sample area has a mostly sandy surface with no large blocks nearby. Fines in the area are extremely loose.

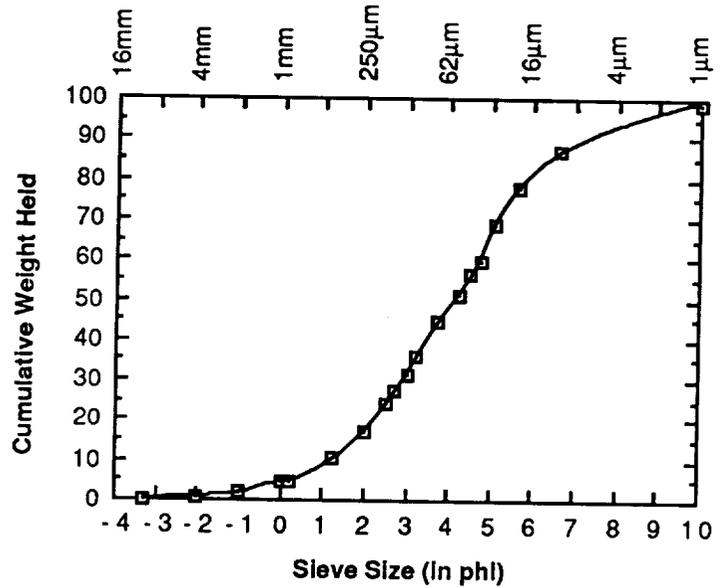
**MATURITY INDEX:**

$I_p/FeO = 106$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.77
2000.00	0.87
1000.00	2.70
841.00	0.26
420.00	5.54
250.00	6.93
177.00	6.85
150.00	3.45
125.00	3.94
105.00	4.67
74.00	8.71
53.00	6.36
44.00	5.29
37.00	3.35
30.00	9.13
20.00	8.95
10.00	8.99
1.00	12.24

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



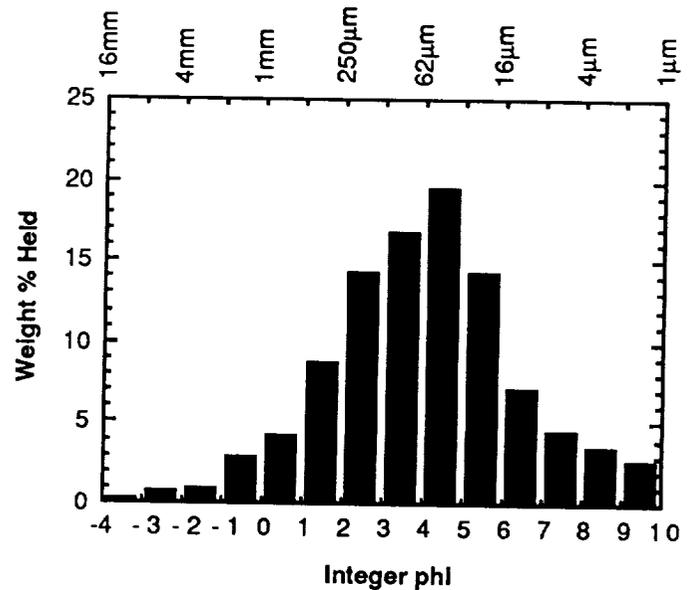
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.11
Median:	4.16
Mode:	4.50
Sorting:	2.33
Skewness:	0.02
Kurtosis:	1.18

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.43
16	1.90
25	2.57
50	4.16
75	5.42
84	6.26
95	8.63

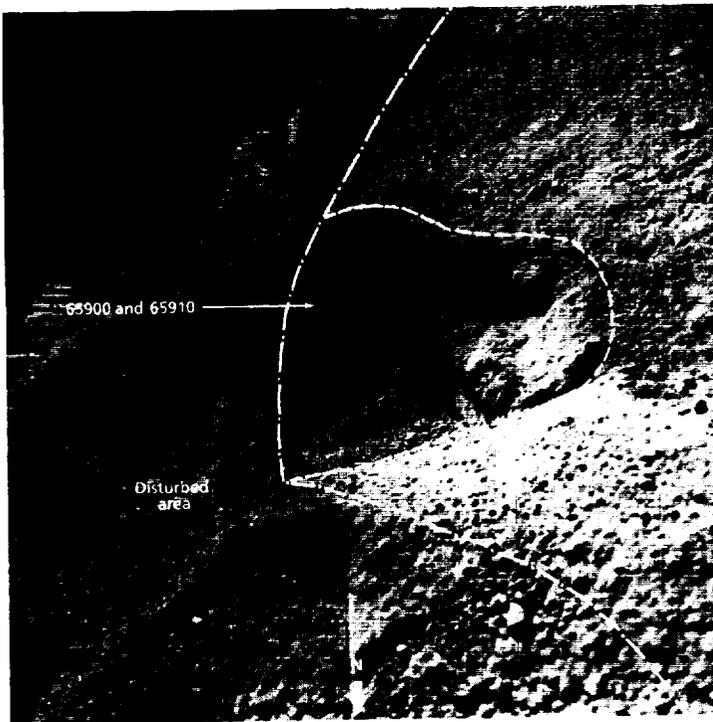
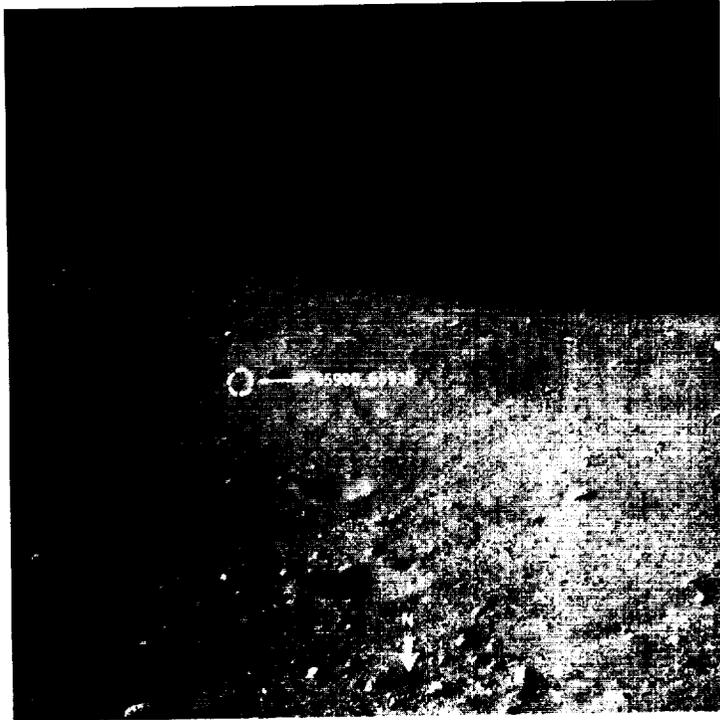
**SIZE DISTRIBUTION HISTOGRAM**



65900 Sample Environment

AS16-110-18014

Pre-sampling.



65900 Sample Environment

AS16-107-17509

Close up, post-sampling.

**Soil: 65900**  
(subsample 65901,6)  
E.A. King PI

**LOCATION COMMENTS:**

65900 is a surface soil to accompany the rake samples at Station 5. Samples were collected on the interior wall of a 20 meter crater, very close to the rim. The sample area has a mostly sandy surface with no large blocks nearby. Fines in the area are extremely loose.

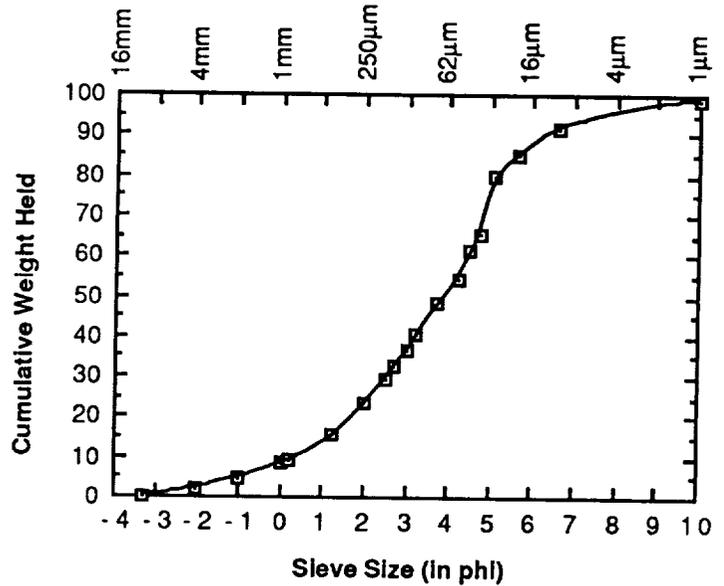
**MATURITY INDEX:**

$I_p/FeO = 99$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.20
2000.00	2.63
1000.00	3.43
841.00	1.06
420.00	6.24
250.00	8.04
177.00	6.07
150.00	3.23
125.00	3.43
105.00	4.29
74.00	7.98
53.00	5.89
44.00	7.11
37.00	3.47
30.00	14.42
20.00	5.73
10.00	6.62
1.00	7.17

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



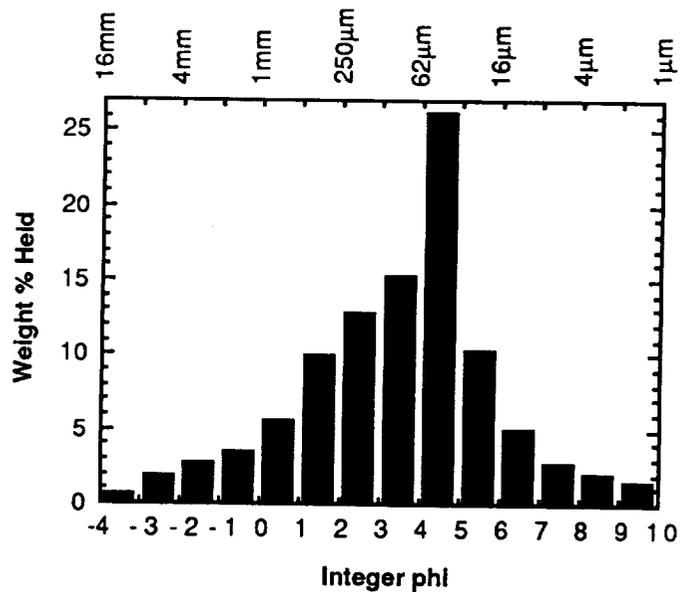
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.56
Median:	3.87
Mode:	4.50
Sorting:	2.37
Skewness:	-0.16
Kurtosis:	1.29

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.94
16	1.31
25	2.12
50	3.87
75	4.90
84	5.50
95	7.80

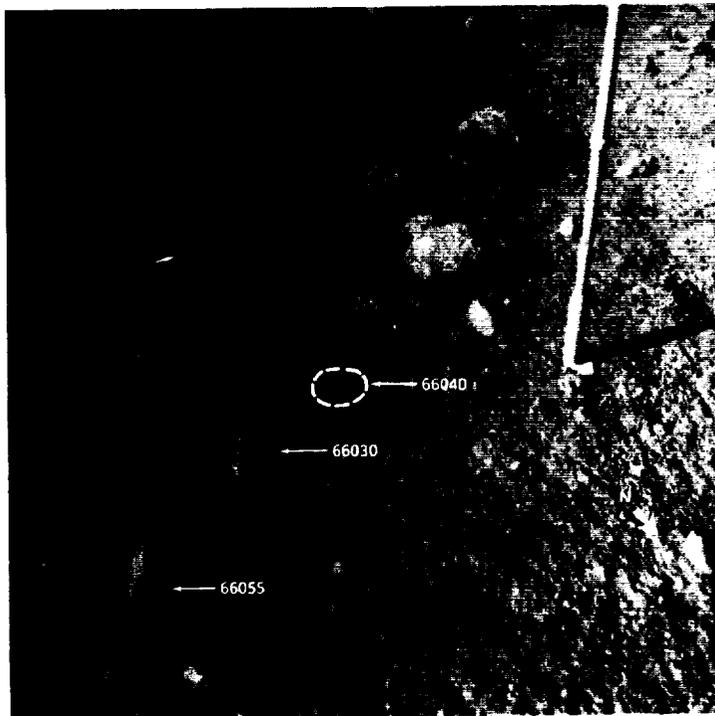
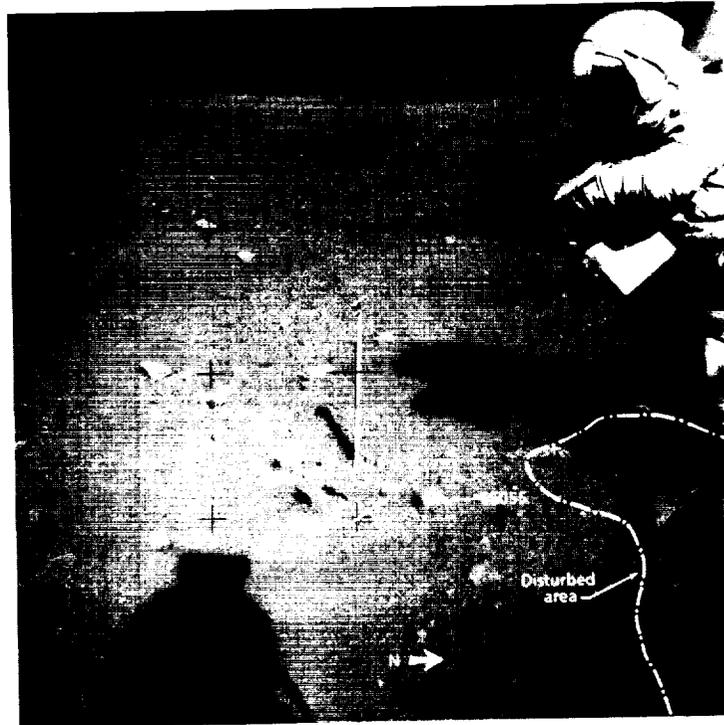
**SIZE DISTRIBUTION HISTOGRAM**



66030 Sample Environment

AS16-108-17627

Pre-sampling.



66030 Sample Environment

AS16-107-17512

Close up, pre-sampling.

Soil: 66030  
(subsample 66031,2)  
E.A. King PI

LOCATION COMMENTS:

66030 is a soil collected with an 8 cm breccia. It is supposed that the breccia is local ejecta, but the source crater is not obvious. Both the soil and the breccia were on a 10 meter crater rim at Station 6 near the base of Stone Mountain. In the sample area 15-30 cm blocks are relatively common, soil is relatively firm compared to the looser regolith at Stations 4 and 5. Craters in the area are mostly <5 meters.

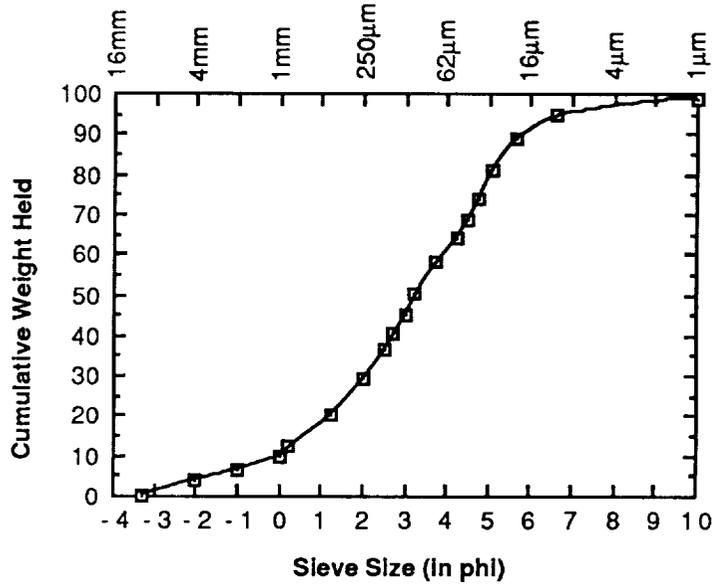
MATURITY INDEX:

$I_g/FeO = 102$  (mature)

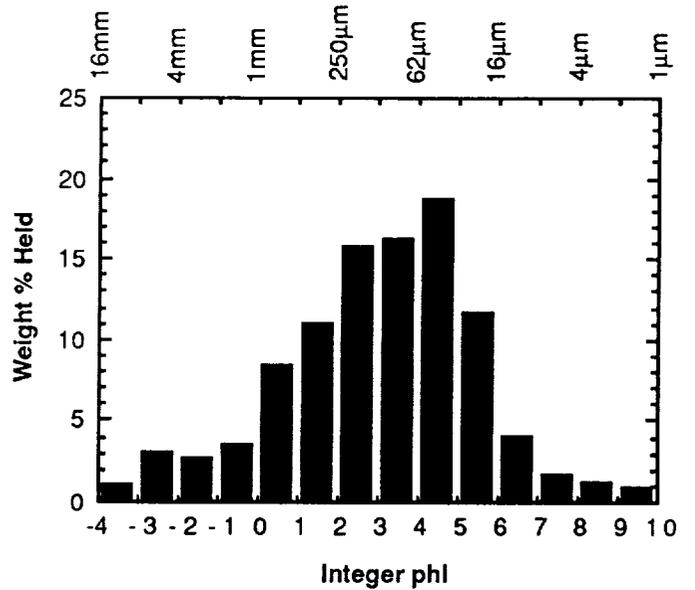
TABULATED SIEVE DATA

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	3.95
2000.00	2.54
1000.00	3.51
841.00	2.43
420.00	8.08
250.00	8.86
177.00	7.12
150.00	4.10
125.00	4.49
105.00	5.09
74.00	8.10
53.00	5.97
44.00	4.38
37.00	4.96
30.00	7.57
20.00	7.82
10.00	5.57
1.00	4.46

CUMULATIVE WEIGHT DISTRIBUTION CURVE



SIZE DISTRIBUTION HISTOGRAM



GRAPHIC AND MOMENT MEASURES

Mean:	3.05
Median:	3.24
Mode:	4.50
Sorting:	2.42
Skewness:	-0.13
Kurtosis:	1.09

MOMENT MEASURE DATA

Wt % held	Ø size
5	-1.59
16	0.69
25	1.66
50	3.24
75	4.82
84	5.23
95	6.86

**Soil: 66040**  
(subsample 66041,23)  
W.V. Engelhardt PI

**LOCATION COMMENTS:**

Soils 66040 and 66030 and breccia 66055 were collected at the same location at Station 6. It is supposed that the breccia is local ejecta, but the source crater is not obvious. Both the soils and the breccia were on a 10 meter crater rim near the base of Stone Mountain. In the sample area 15-30 cm blocks are relatively common, soil is relatively firm compared to the looser regolith at Stations 4 and 5. Craters in the area are mostly <5 meters.

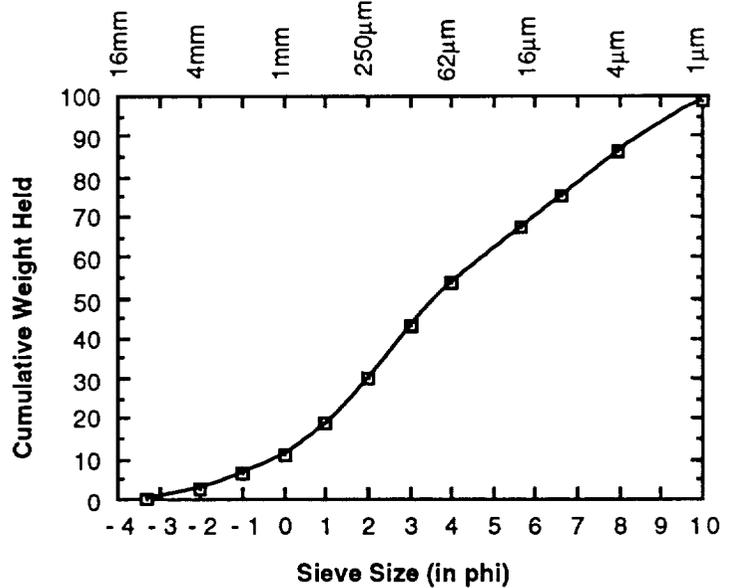
**MATURITY INDEX:**

$I_s/FeO = 90$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	2.77
2000	3.8
1000	4.78
500	7.62
250	10.86
125	13.14
63	10.68
20	13.66
10	8.14
4	11.03
1	12.52

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



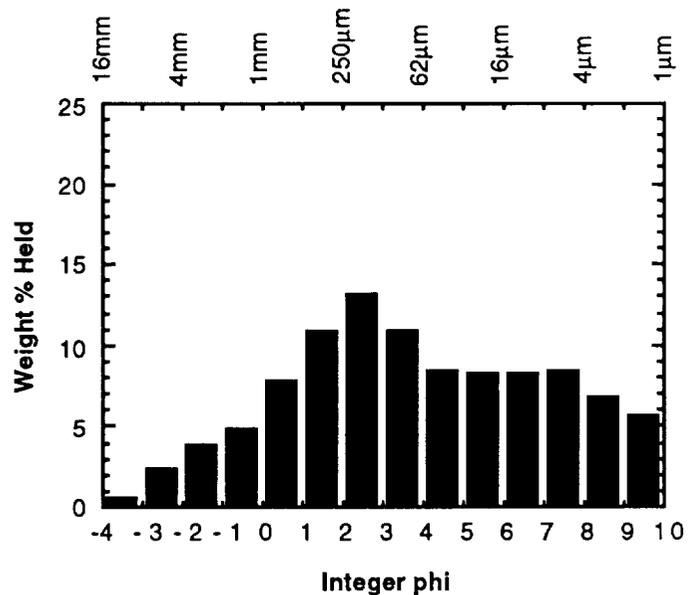
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.98
Median:	3.63
Mode:	2.5
Sorting:	3.37
Skewness:	0.11
Kurtosis:	0.87

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.38
16	0.65
25	1.58
50	3.63
75	6.59
84	7.66
95	9.27

**SIZE DISTRIBUTION HISTOGRAM**

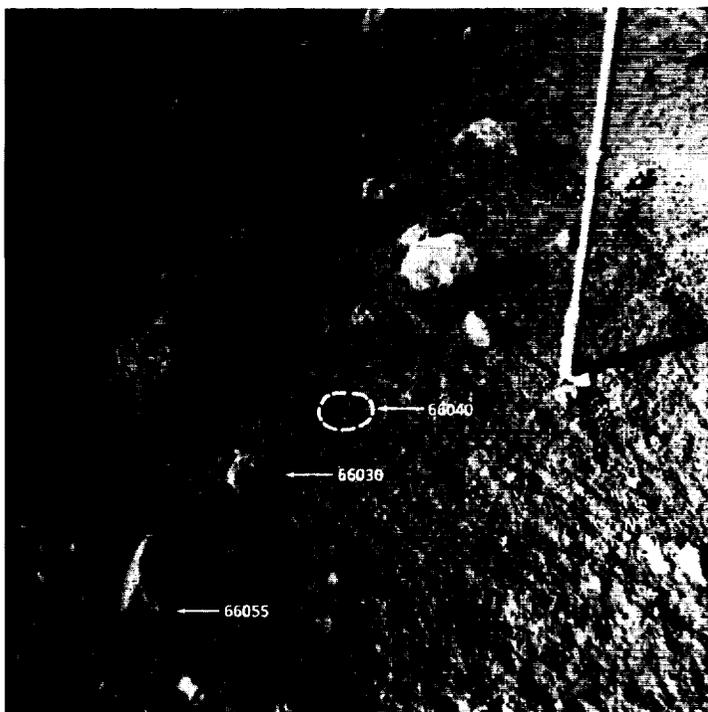




66040 Sample Environment

AS16-107-17512

Pre-sampling.



66040 Sample Environment

AS16-108-17627

Close up, pre-sampling.

**Soil: 66040**  
(subsample 66041,15)  
E.A. King PI

**LOCATION COMMENTS:**

Soils 66040 and 66030 and breccia 66055 were collected at the same location at Station 6. It is supposed that the breccia is local ejecta, but the source crater is not obvious. Both the soils and the breccia were on a 10 meter crater rim near the base of Stone Mountain. In the sample area 15-30 cm blocks are relatively common, soil is relatively firm compared to the looser regolith at Stations 4 and 5. Craters in the area are mostly <5 meters.

**MATURITY INDEX:**

$I_s/FeO = 90$  (mature)

**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	2.77
2000.00	3.80
1000.00	4.78
841.00	0.59
420.00	6.37
250.00	6.70
177.00	5.63
150.00	3.70
125.00	3.43
105.00	4.03
74.00	6.68
53.00	4.94
44.00	4.93
37.00	2.90
30.00	8.33
20.00	9.19
10.00	8.53
1.00	11.68

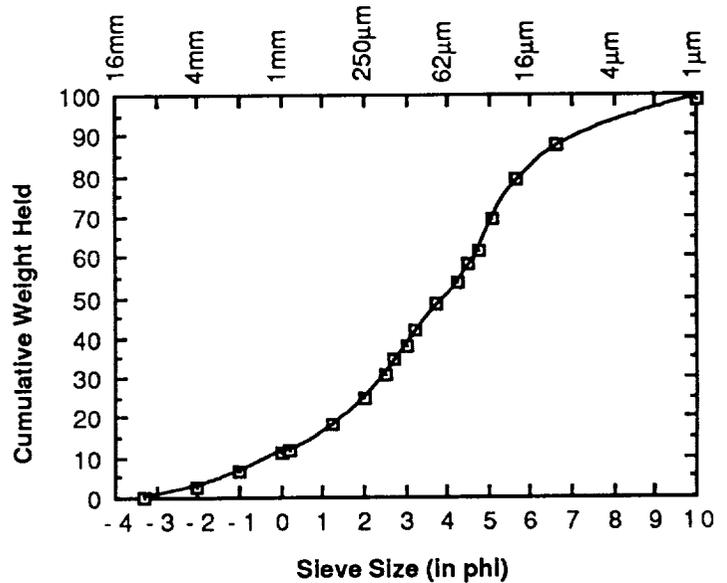
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.67
Median:	3.90
Mode:	4.50
Sorting:	2.82
Skewness:	-0.10
Kurtosis:	1.21

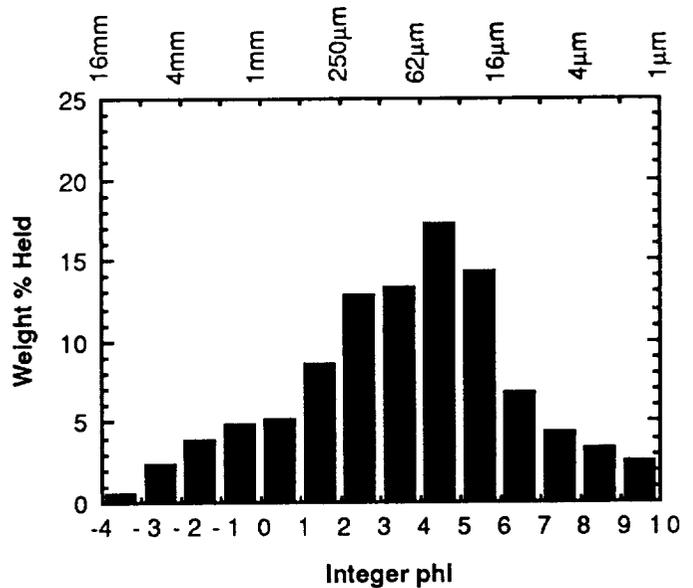
**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-1.38
16	0.94
25	2.00
50	3.90
75	5.36
84	6.17
95	8.57

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



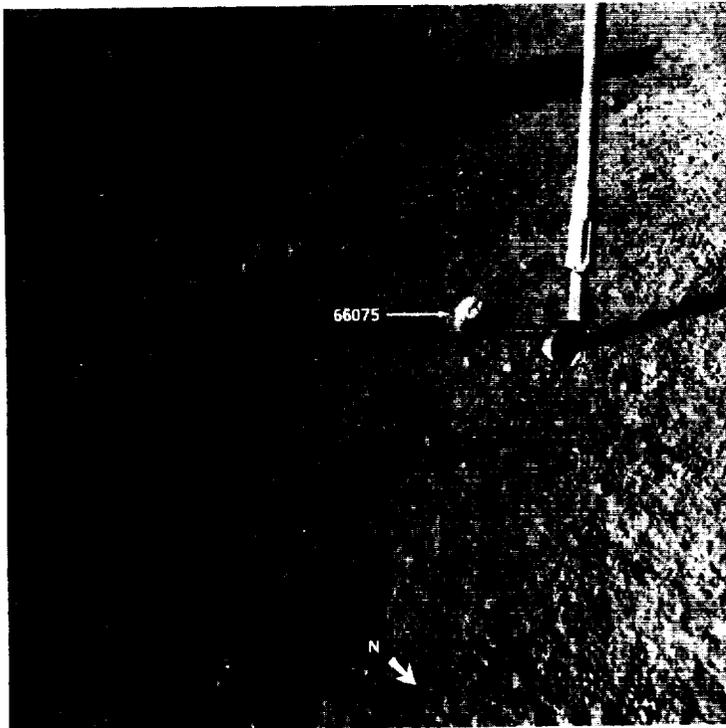
**SIZE DISTRIBUTION HISTOGRAM**



66075 Sample Environment

AS16-108-17631

Pre-sampling.



66075 Sample Environment

AS16-107-17522

Close up, pre-sampling.

**Soil: 66075**  
(subsample 66075,16)  
D.S. McKay PI

**LOCATION COMMENTS:**

Friable breccia collected on the southwest wall of a 10 meter crater at the base of Stone Mountain, at Station 6. The breccia was disaggregated with 4400 freeze / thaw cycles (but no sonic disaggregation). The site slopes 10 degrees to the northwest, with scattered fragments up to 50 cm in the nearby area. .5-1 meter craters are common at the collection site.

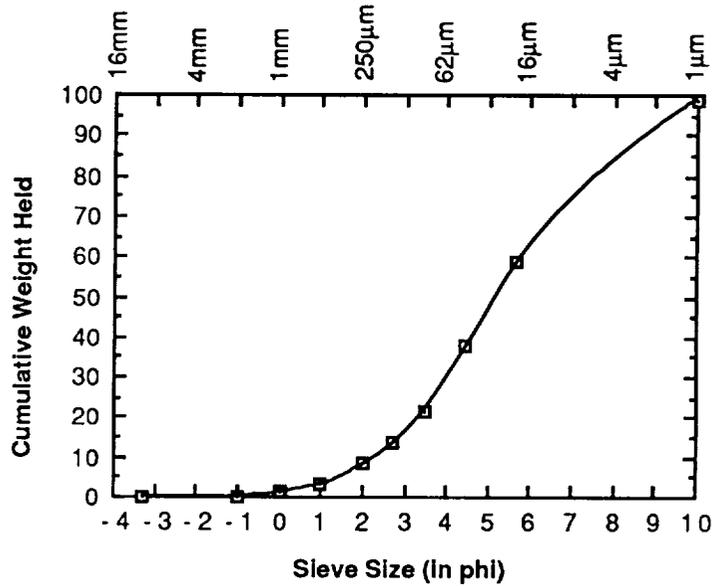
**MATURITY INDEX:**

$I_g/FeO = 0.5$  (immature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	0.00
1000.00	1.11
500.00	1.96
250.00	5.11
150.00	5.64
90.00	7.85
45.00	16.14
20.00	20.72
1.00	40.47

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



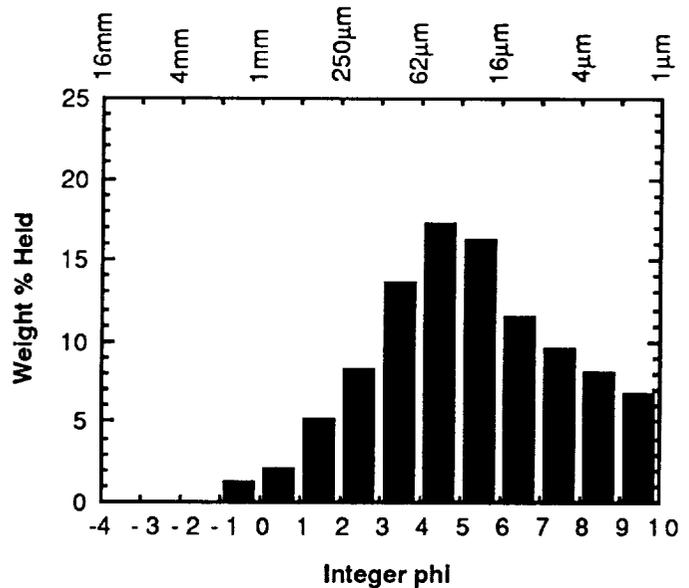
**GRAPHIC AND MOMENT MEASURES**

Mean:	5.39
Median:	5.16
Mode:	4.50
Sorting:	2.48
Skewness:	0.10
Kurtosis:	0.97

**MOMENT MEASURE DATA**

Wt % hld	$\phi$ size
5	1.46
16	2.97
25	3.70
50	5.16
75	7.08
84	8.05
95	9.42

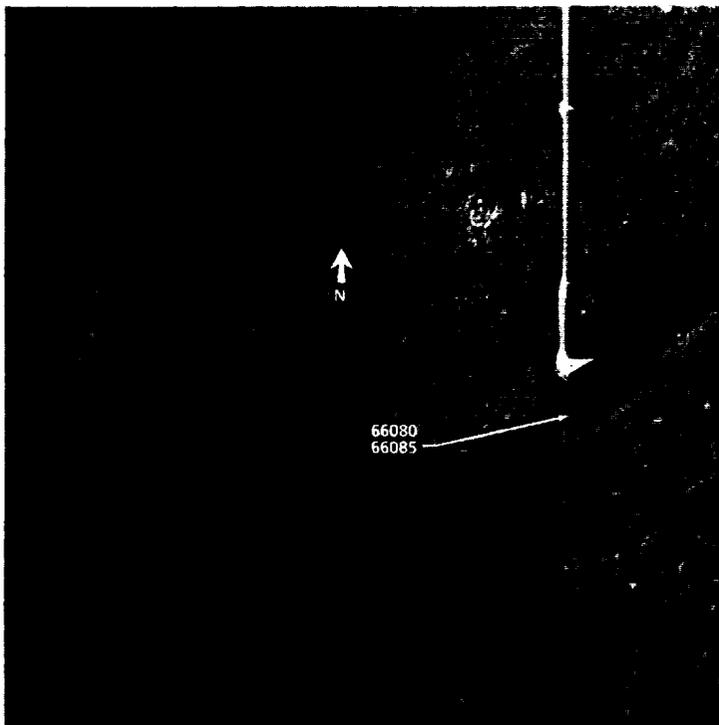
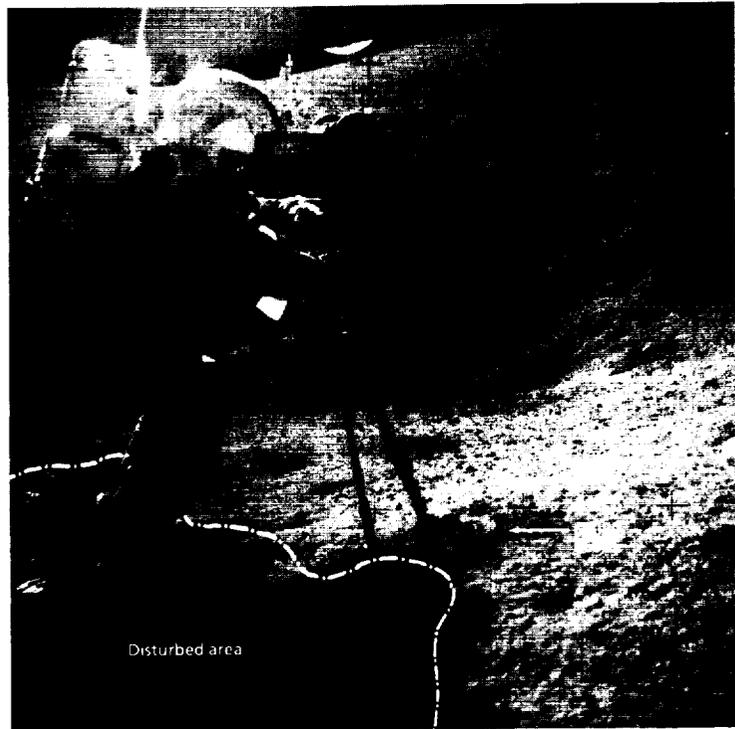
**SIZE DISTRIBUTION HISTOGRAM**



66080 Sample Environment

AS16-108-17629

During sampling.



66080 Sample Environment

AS16-107-17519

Pre-sampling.

**Soil: 66080**  
(subsample 66081,13)  
E.A. King PI

**LOCATION COMMENTS:**

Soil 66080 collected with fragment 66085 were taken at Station 6 along the west rim of a 10 meter diameter crater at the base of Stone Mountain. Cobbles 5-15 cm are widely distributed in the surrounding area with a few scattered blocks up to 50 cm. Craters <5 meters are common. The soil collected is unique for that site, it is described as an indurated clod of white impact ejecta; possibly from south ray crater.

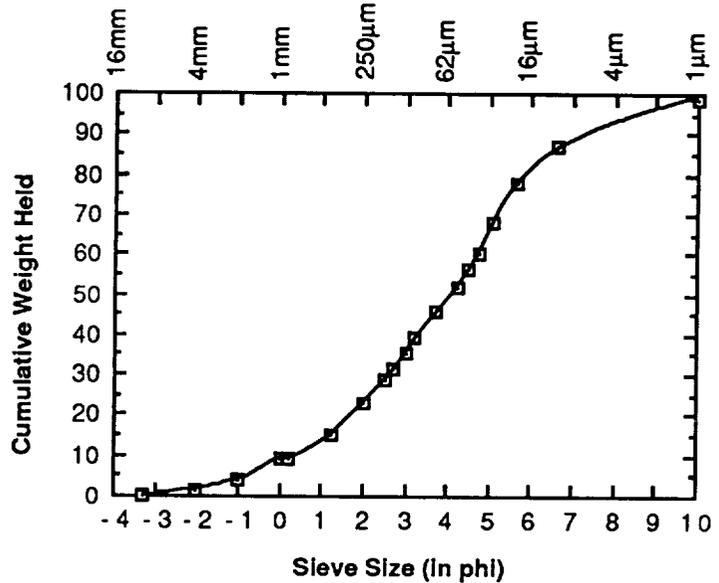
**MATURITY INDEX:**

$I_s/FcO = 80$  (mature)

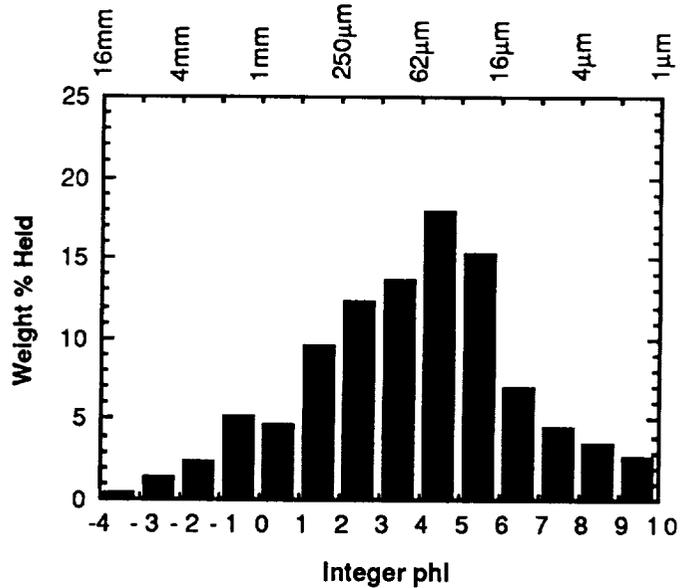
**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	1.59
2000.00	2.31
1000.00	5.01
841.00	0.48
420.00	5.90
250.00	7.72
177.00	5.59
150.00	2.78
125.00	3.93
105.00	3.87
74.00	6.71
53.00	5.85
44.00	4.48
37.00	3.76
30.00	8.01
20.00	9.99
10.00	8.78
1.00	12.23

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**

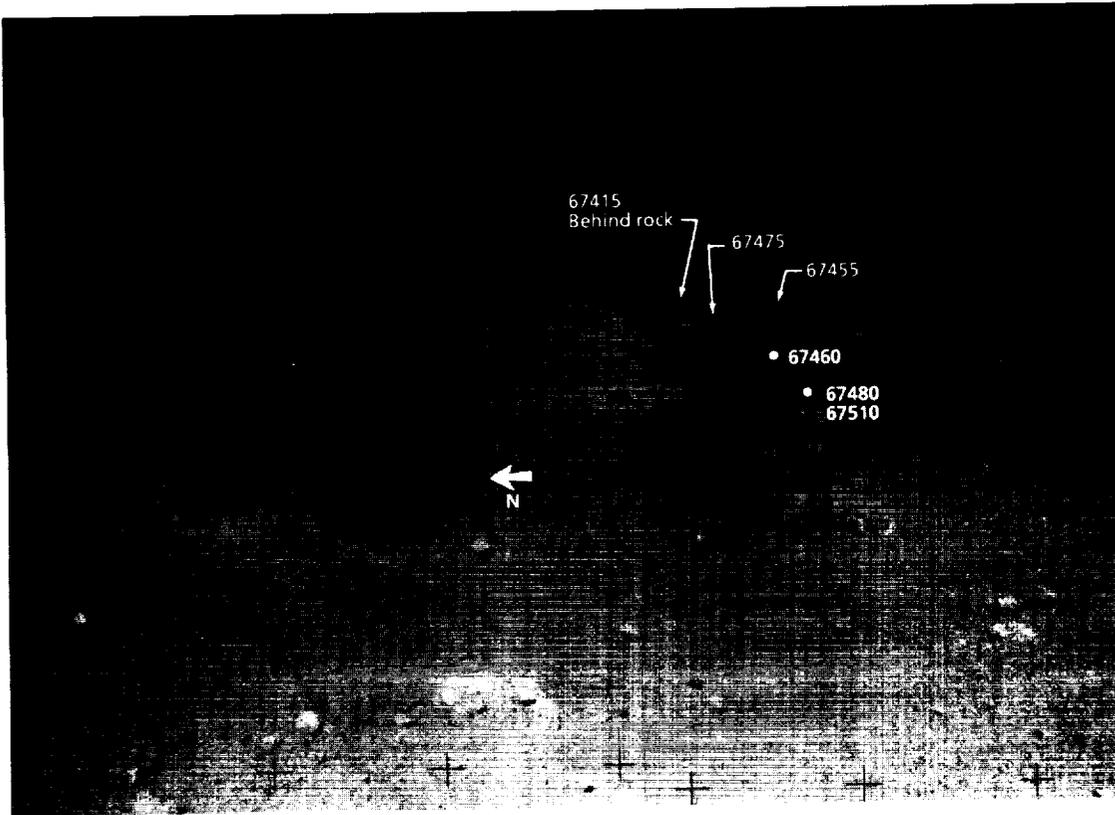


**GRAPHIC AND MOMENT MEASURES**

Mean:	3.89
Median:	4.10
Mode:	4.50
Sorting:	2.64
Skewness:	-0.08
Kurtosis:	1.18

**MOMENT MEASURE DATA**

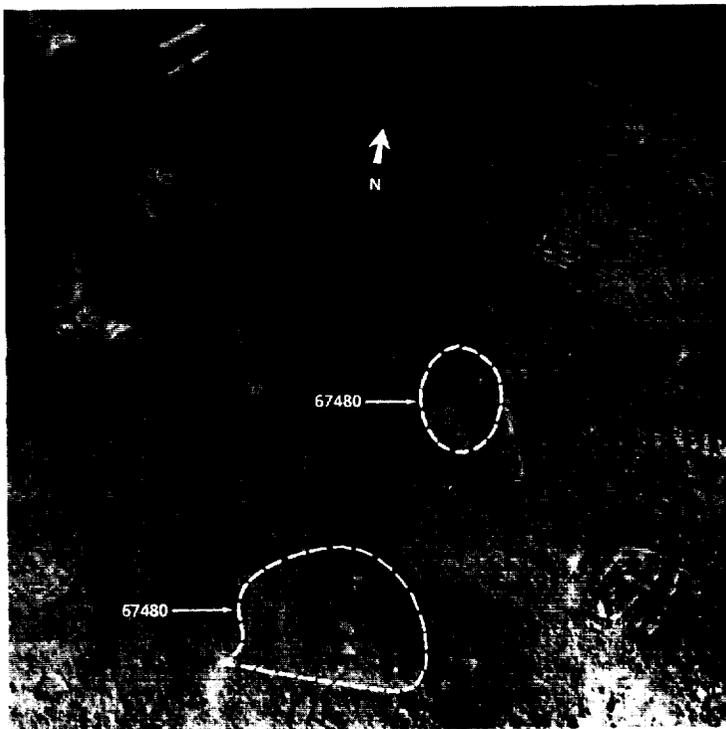
Wt % held	Ø size
5	-0.70
16	1.34
25	2.18
50	4.10
75	5.43
84	6.25
95	8.63



67480 Sample Environment

AS16-106-17323, 24

Pre-sampling.



67480 Sample Environment

AS16-116-18639

Post-sampling, close up.

**Soil: 67480**  
 (subsample 67481,23)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Reference soil 67840 accompanies rake sample 67510; both were taken on the southeast rim of North Ray crater, at Station 11 in the area of the white breccia boulders. The sample area is in a local north-south swale, the surface is soft and fine; fragments greater than 10 cm are sparse and the crew reported "sinking in on the slopes about 6 inches."

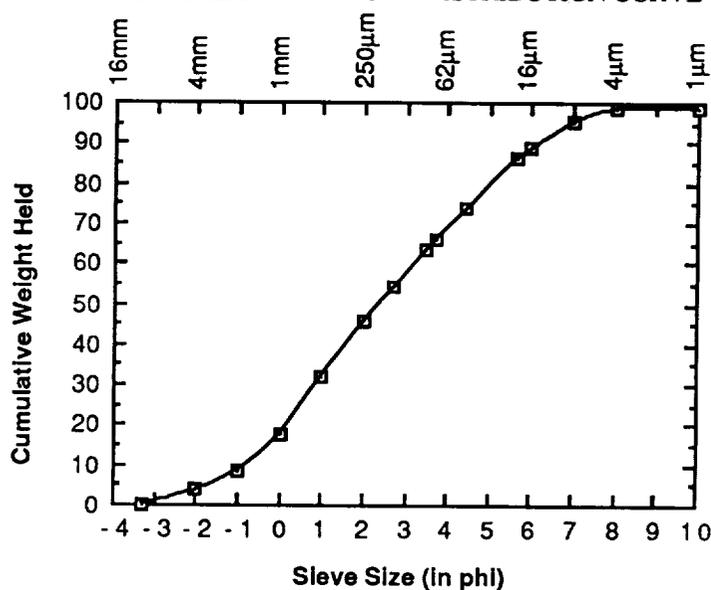
**MATURITY INDEX:**

$I_s/FeO = 31$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	3.68
2000.00	5.12
1000.00	8.97
500.00	14.53
250.00	13.41
150.00	8.66
90.00	8.91
75.00	2.75
45.00	7.83
20.00	12.35
15.60	2.58
7.80	6.59
3.90	3.02
1.00	0.58

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



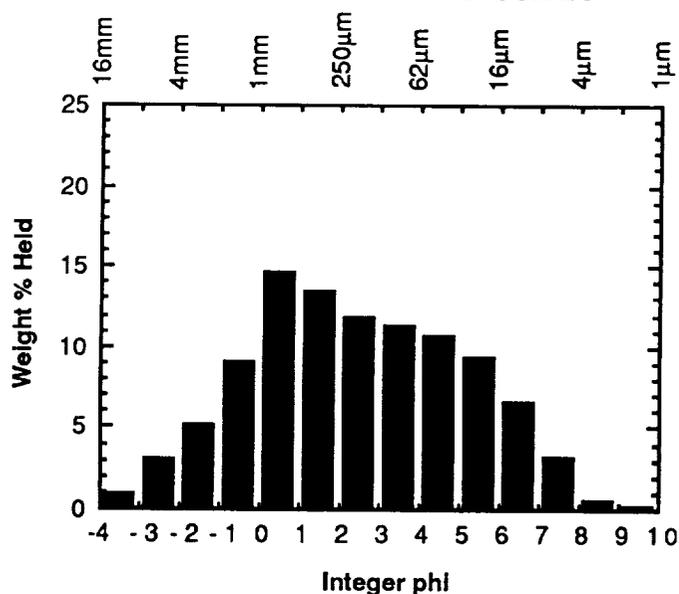
**GRAPHIC AND MOMENT MEASURES**

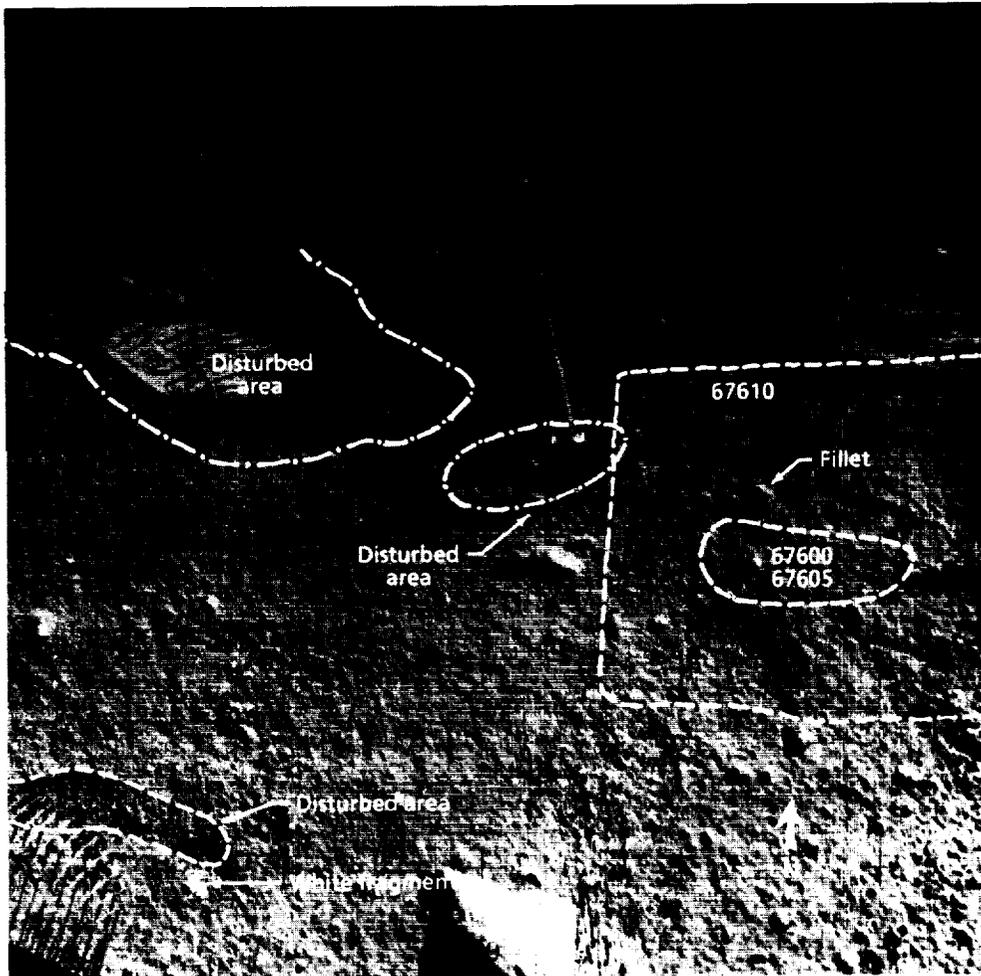
Mean:	2.54
Median:	2.36
Mode:	0.50
Sorting:	2.70
Skewness:	0.08
Kurtosis:	0.86

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.68
16	-0.17
25	0.50
50	2.36
75	4.58
84	5.43
95	6.92

**SIZE DISTRIBUTION HISTOGRAM**





67600 Sample Environment

AS16-116-18642

Pre-sampling, black streaks  
on the original negative.

**Soil: 67600**  
 (subsample 67601,14)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Reference soil 67600, rake soil 67610, and fragment 67605 were all taken on the southeast rim of North Ray crater. The sample area is in the bottom of "Little Hollow" a few meters from the white breccia boulder. Fragments 10 cm or smaller are common here, no craters are visible and the surface is moderately firm, boot prints are often deeper than 1 cm at this site. The soil is probably derived from North Ray crater ejecta.

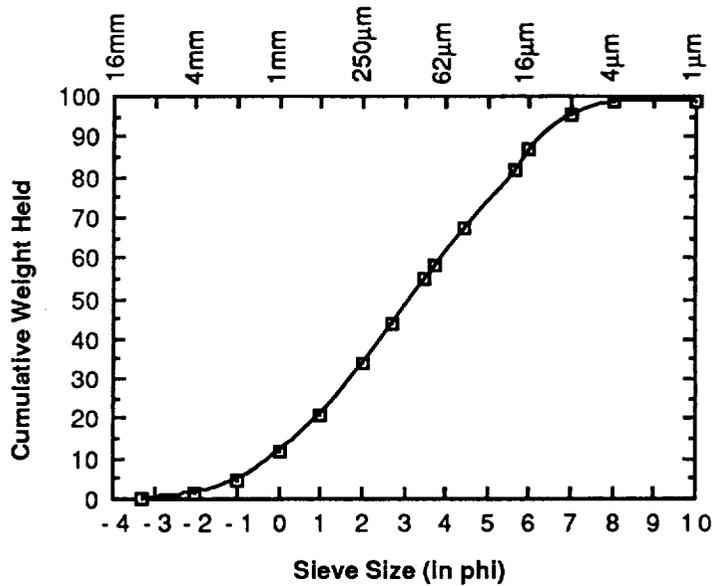
**MATURITY INDEX:**

$I_p/FeO = 45$  (submature)

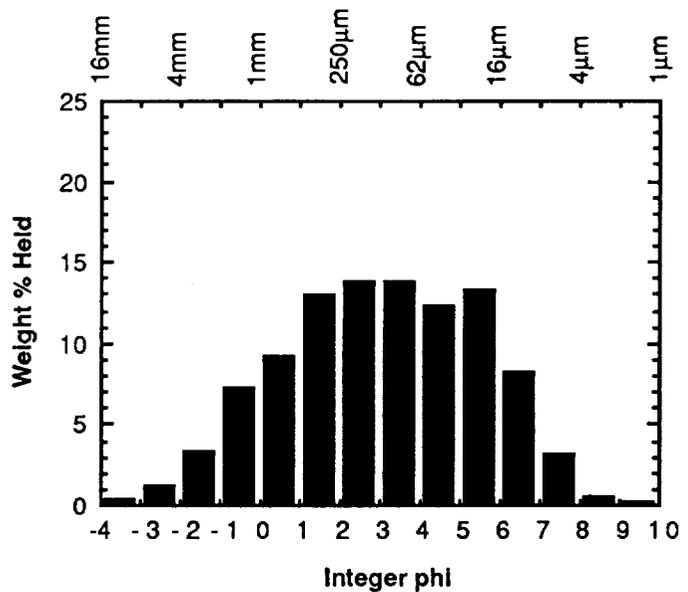
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	1.41
2000.00	3.32
1000.00	7.24
500.00	9.17
250.00	12.93
150.00	9.98
90.00	10.67
75.00	3.48
45.00	9.35
20.00	13.88
15.60	5.71
7.80	8.20
3.90	3.11
1.00	0.56

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**

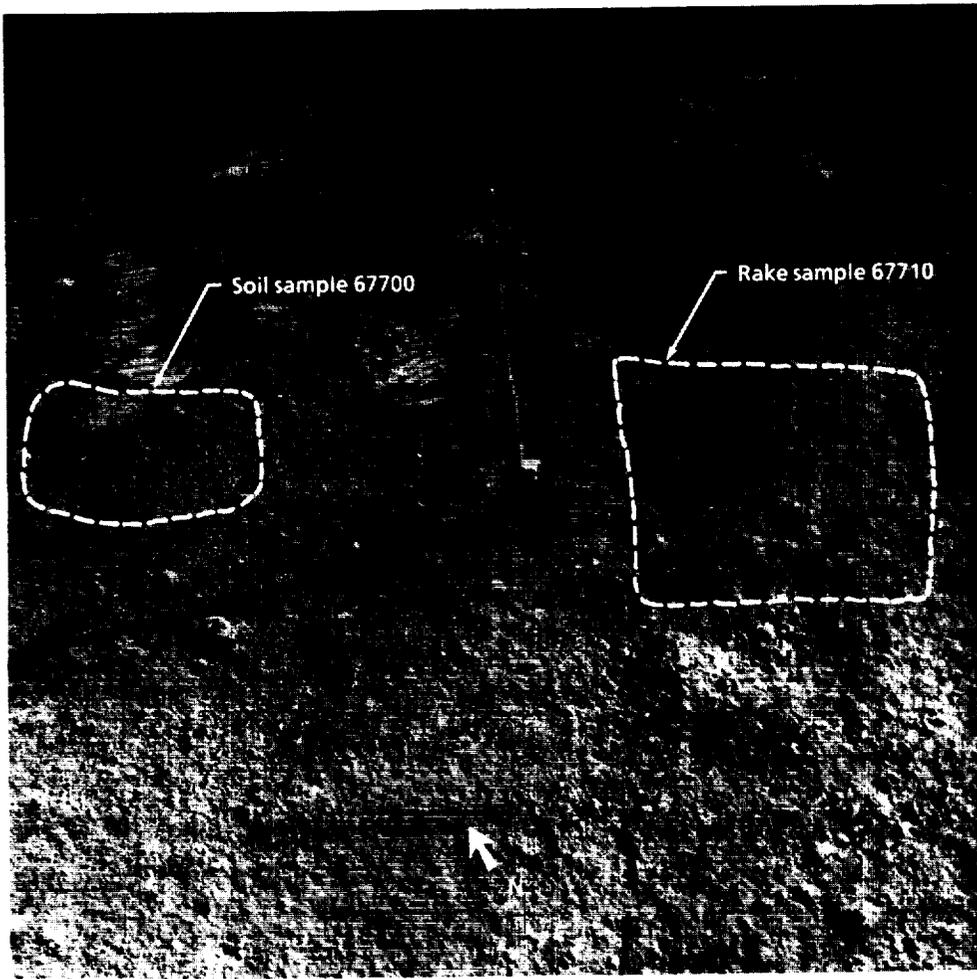


**GRAPHIC AND MOMENT MEASURES**

Mean:	3.14
Median:	3.15
Mode:	3.50
Sorting:	2.52
Skewness:	-0.02
Kurtosis:	0.85

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.94
16	0.47
25	1.31
50	3.15
75	5.10
84	5.81
95	6.92



67700 Sample Environment

AS16-116-18644

Pre-sampling.

**Soil: 67700**  
 (subsample 67701,16)  
 E.A. King PI

**LOCATION COMMENTS:**

Reference soil 67700, fragments in the soil numbered 67705-67708, and rake sample 67710 were taken at Station 11 at the southeast rim of North Ray crater. The surface gently slopes to the northeast, fragments smaller than 10 cm are common. The crew described the surface as hard, possibly on top of a large white rock. The rake would not penetrate. There is one 50 cm secondary crater in the center of the rake sample.

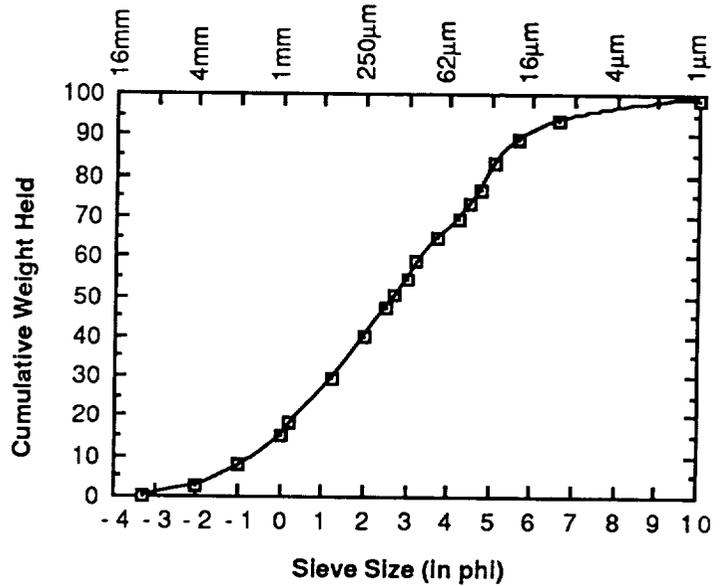
**MATURITY INDEX:**

$I_g/FcO = 39$  (submature)

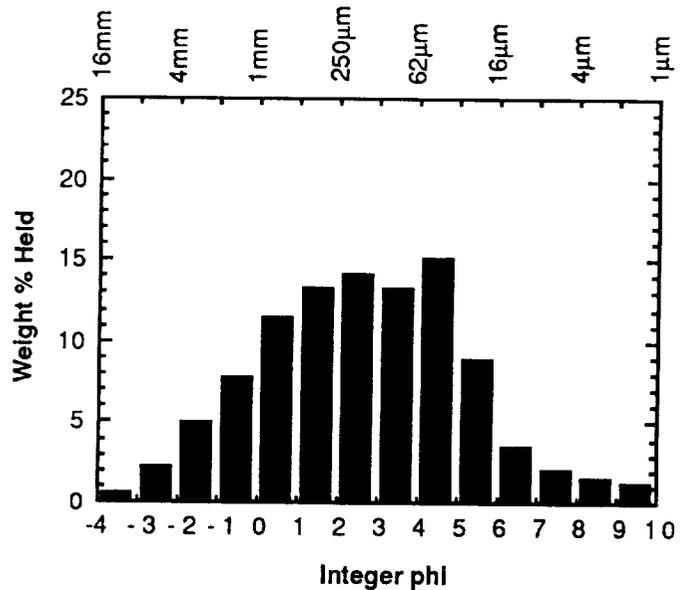
**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	2.66
2000.00	4.88
1000.00	7.73
841.00	2.96
420.00	11.49
250.00	10.30
177.00	7.07
150.00	3.34
125.00	3.62
105.00	5.07
74.00	5.88
53.00	4.40
44.00	3.76
37.00	3.60
30.00	6.55
20.00	5.67
10.00	4.64
1.00	5.37

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	2.63
Median:	2.71
Mode:	4.50
Sorting:	2.58
Skewness:	-0.00
Kurtosis:	0.94

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-1.46
16	0.06
25	0.84
50	2.71
75	4.64
84	5.11
95	7.24

**Soil: 67700**  
(subsample 67701,17)  
D.S. McKay PI

**LOCATION COMMENTS:**

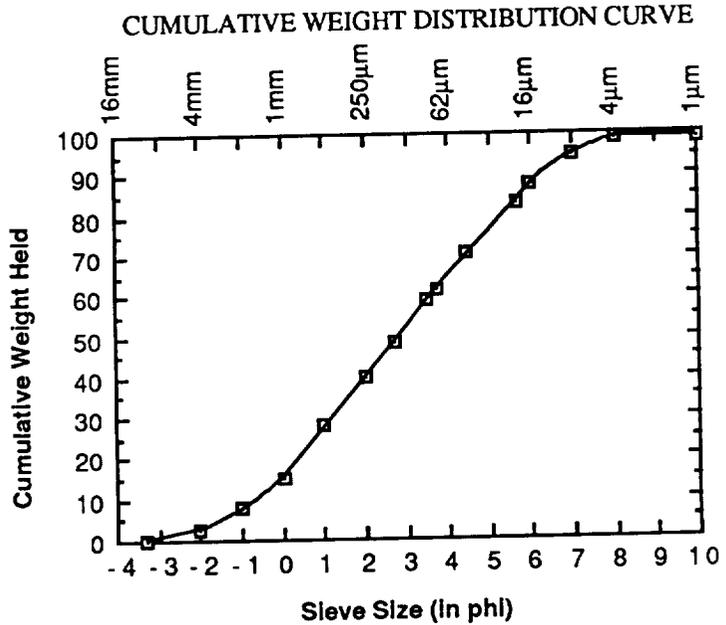
Reference soil 67700, fragments in the soil numbered 67705-67708, and rake sample 67710 were taken at Station 11 at the southeast rim of North Ray crater. The surface gently slopes to the northeast, fragments smaller than 10 cm are common. The crew described the surface as hard, possibly on top of a large white rock. The rake would not penetrate. There is one 50 cm secondary crater in the center of the rake sample.

**MATURITY INDEX:**

$I_s/FeO = 39$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.66
2000.00	4.88
1000.00	7.73
500.00	12.55
250.00	11.94
150.00	8.79
90.00	9.98
75.00	3.07
45.00	8.66
20.00	12.86
15.60	4.68
7.80	6.82
3.90	3.77
1.00	0.58

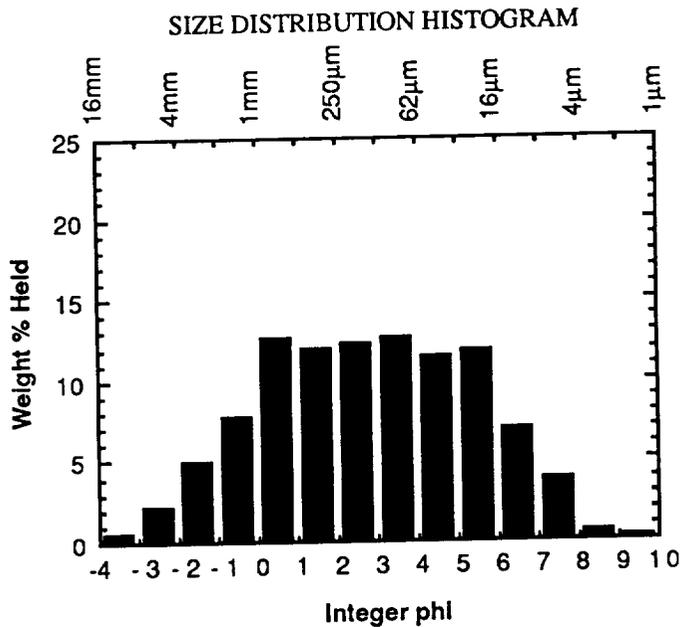


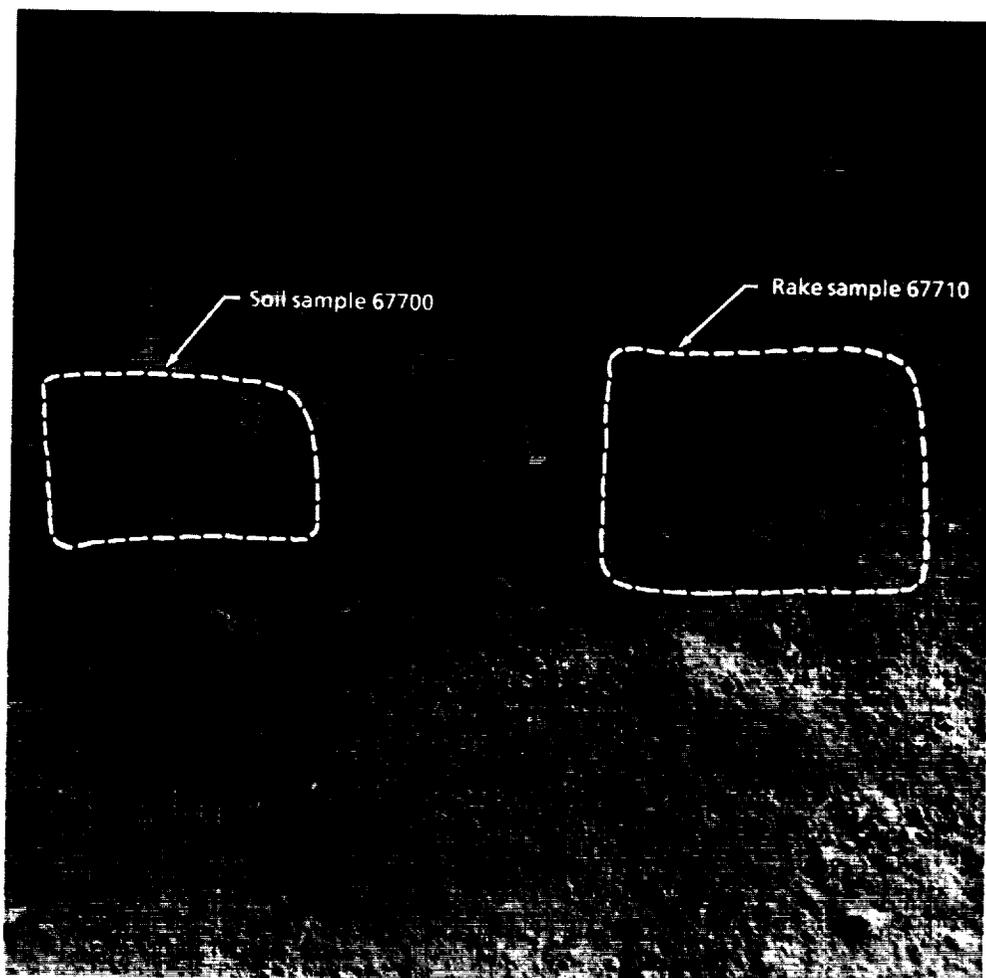
**GRAPHIC AND MOMENT MEASURES**

Mean:	2.88
Median:	2.85
Mode:	3.50
Sorting:	2.70
Skewness:	0.00
Kurtosis:	0.85

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.46
16	0.07
25	0.77
50	2.85
75	4.90
84	5.71
95	7.08





67710 Sample Environment

AS16-116-18644

Pre-sampling.

**Soil: 67710**  
(subsample 67711,16)  
D.S. McKay PI

**LOCATION COMMENTS:**

Reference soil 67700, fragments in the soil numbered 67705-67708, and rake sample 67710 were taken at Station 11 at the southeast rim of North Ray crater. The surface gently slopes to the northeast, fragments smaller than 10 cm are common. The crew described the surface as hard, possibly on top of a large white rock. The rake would not penetrate. There is one 50 cm secondary crater in the center of the rake sample. The size distribution for this sample is probably skewed slightly because this was collected as a rake sample.

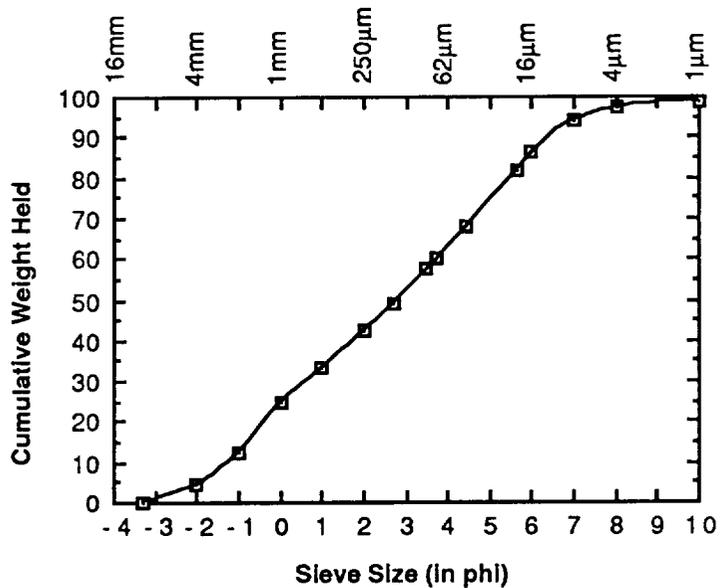
**MATURITY INDEX:**

$I_s/FeO = 2.8$  (immature)

**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	4.55
2000.00	8.08
1000.00	12.53
500.00	8.28
250.00	9.06
150.00	6.83
90.00	7.96
75.00	2.66
45.00	8.33
20.00	13.30
15.60	4.95
7.80	7.67
3.90	3.09
1.00	1.70

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



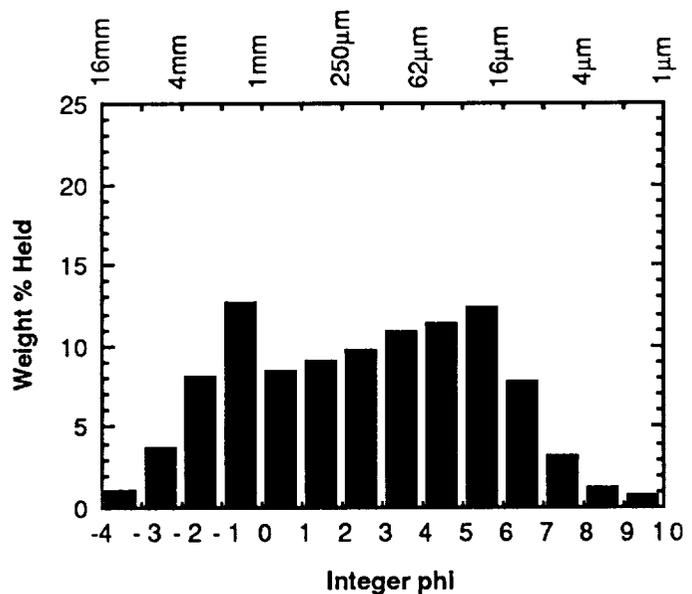
**GRAPHIC AND MOMENT MEASURES**

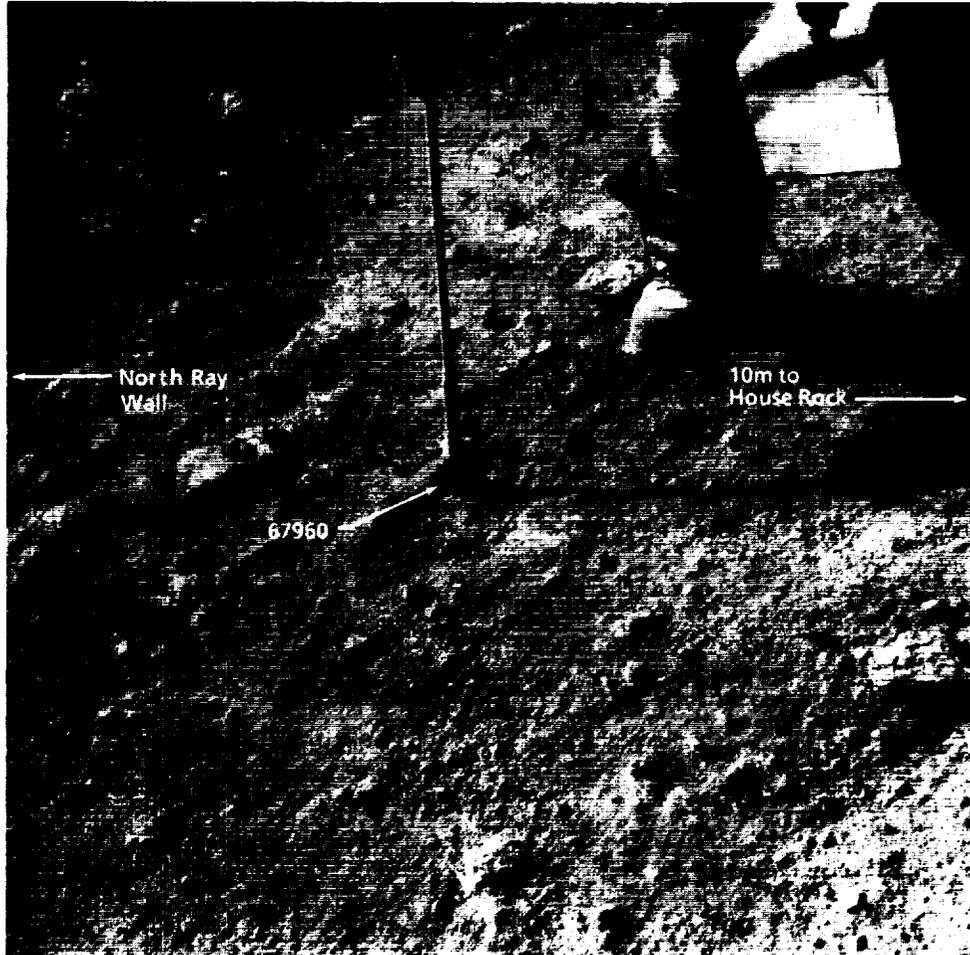
Mean:	2.64
Median:	2.80
Mode:	-0.50
Sorting:	3.01
Skewness:	-0.05
Kurtosis:	0.74

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-1.91
16	-0.70
25	-0.02
50	2.80
75	5.07
84	5.82
95	7.21

**SIZE DISTRIBUTION HISTOGRAM**





67940 Sample Environment

AS16-106-17347

Pre-sampling photo. 67960  
is reference soil for 67940,  
2 m to the west.

**Soil: 67940**  
(subsample 67941,13)  
D.S. McKay PI

**LOCATION COMMENTS:**

Soil 67940 came from the "east-west crack" along with fragments 67945-67948 and reference soil 67960 at the House Rock area of Station 11. 67940 was collected from the east-west crack between House Rock and South Boulder; the sample was not permanently shadowed.

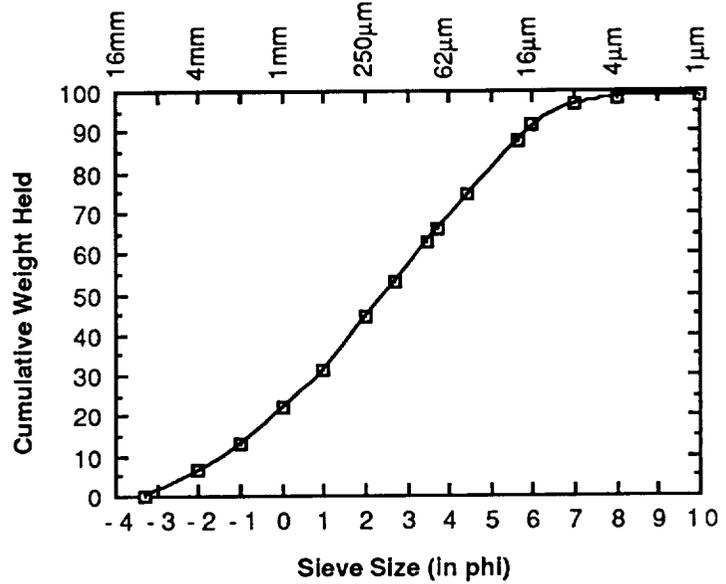
**MATURITY INDEX:**

$I_s/FeO = 29$  (immature)

**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	6.25
2000.00	6.81
1000.00	8.90
500.00	9.26
250.00	12.94
150.00	9.10
90.00	9.73
75.00	3.09
45.00	8.73
20.00	12.85
15.60	3.84
7.80	4.91
3.90	1.88
1.00	0.70

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



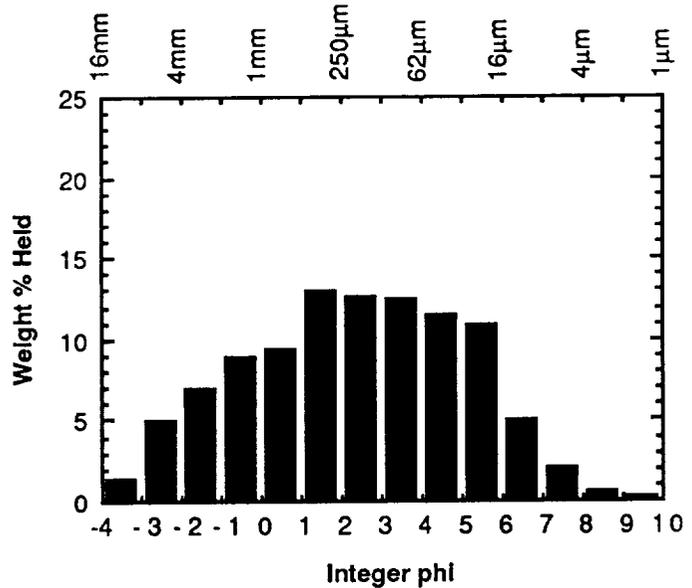
**GRAPHIC AND MOMENT MEASURES**

Mean:	2.37
Median:	2.47
Mode:	1.50
Sorting:	2.83
Skewness:	-0.06
Kurtosis:	0.87

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-2.23
16	-0.66
25	0.33
50	2.47
75	4.49
84	5.30
95	6.58

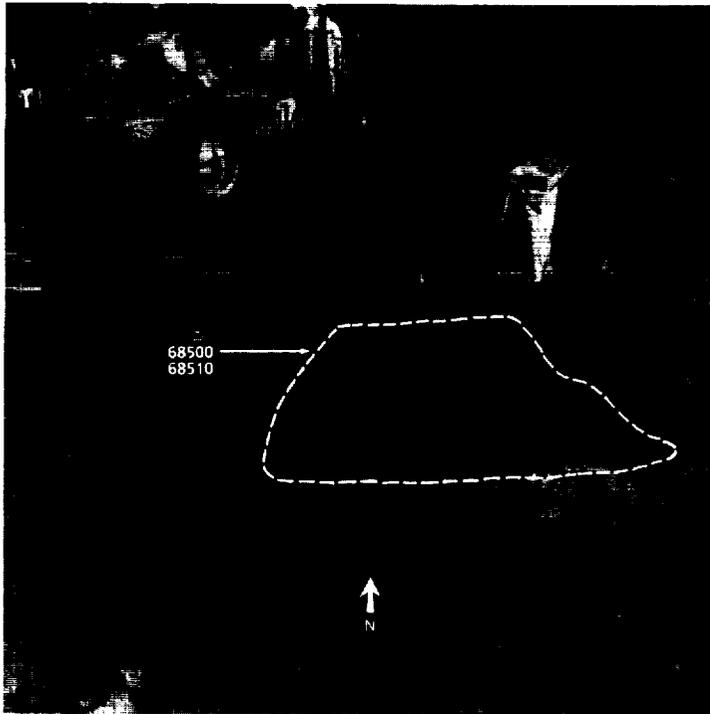
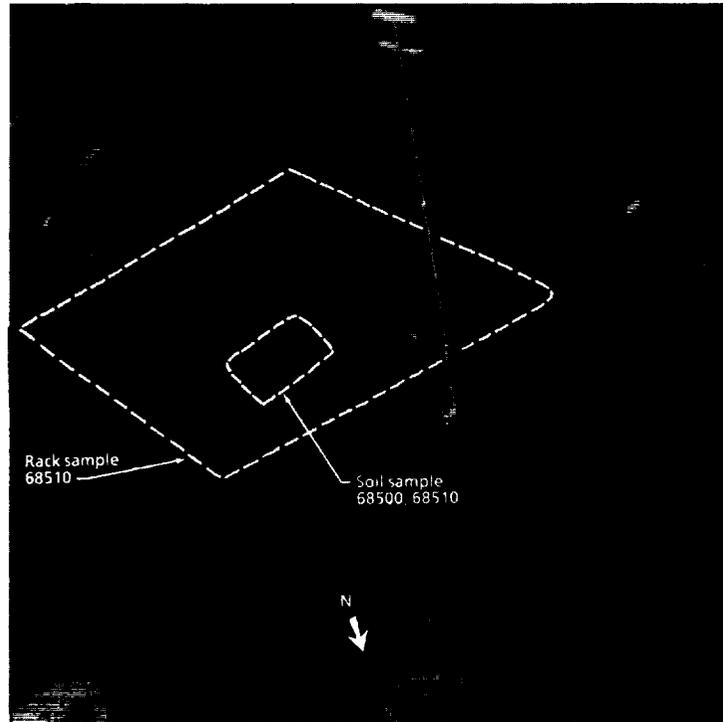
**SIZE DISTRIBUTION HISTOGRAM**



68500 Sample Environment

AS16-107-17528

Pre-sampling.



68500 Sample Environment

AS16-107-17537

After sampling soil and  
rake samples.

**Soil: 68500**  
 (subsample 68501,33)  
 E.A. King PI

**LOCATION COMMENTS:**

Soil 68500 accompanied rake sample 68510 at Station 8, on the north rim of a 10-15 meter crater in the vicinity of visible rays from South Ray crater. Astronauts reported several glass fragments scattered over the surface in this area, some reflecting red and green in the sunlight. The sample area is generally free of large rocks.

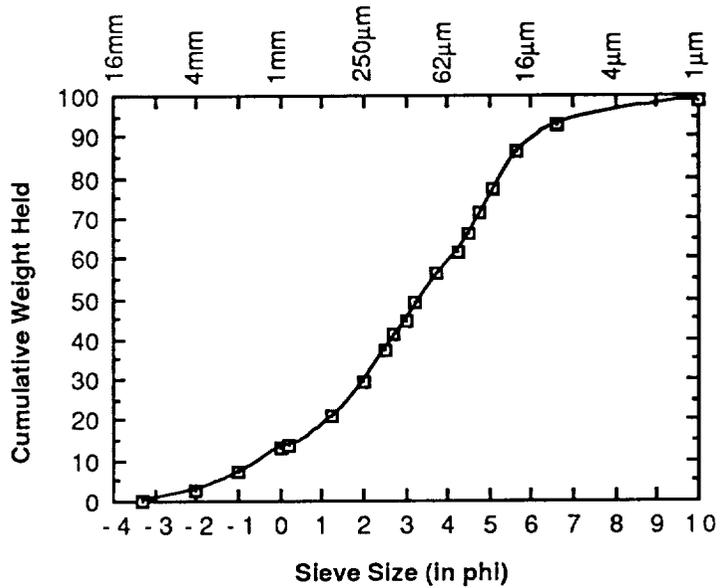
**MATURITY INDEX:**

$I_s/FeO = 85$  (mature)

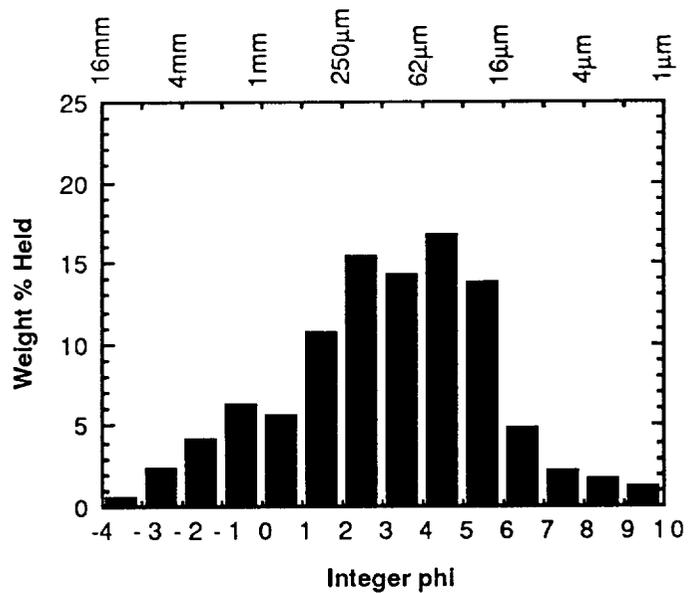
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.84
2000.00	4.14
1000.00	6.22
841.00	0.48
420.00	7.23
250.00	8.51
177.00	8.16
150.00	3.36
125.00	3.77
105.00	4.18
74.00	7.56
53.00	5.00
44.00	4.74
37.00	4.79
30.00	5.83
20.00	9.59
10.00	6.69
1.00	5.91

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.15
Median:	3.32
Mode:	4.50
Sorting:	2.54
Skewness:	-0.09
Kurtosis:	1.10

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.43
16	0.67
25	1.65
50	3.32
75	4.97
84	5.47
95	7.43

**Soil: 68500**  
(subsample 68501,36)  
D.S. McKay PI

**LOCATION COMMENTS:**

Soil 68500 accompanied rake sample 68510 at Station 8, on the north rim of a 10-15 meter crater in the vicinity of visible rays from South Ray crater. Astronauts reported several glass fragments scattered over the surface in this area, some reflecting red and green in the sunlight. The sample area is generally free of large rocks.

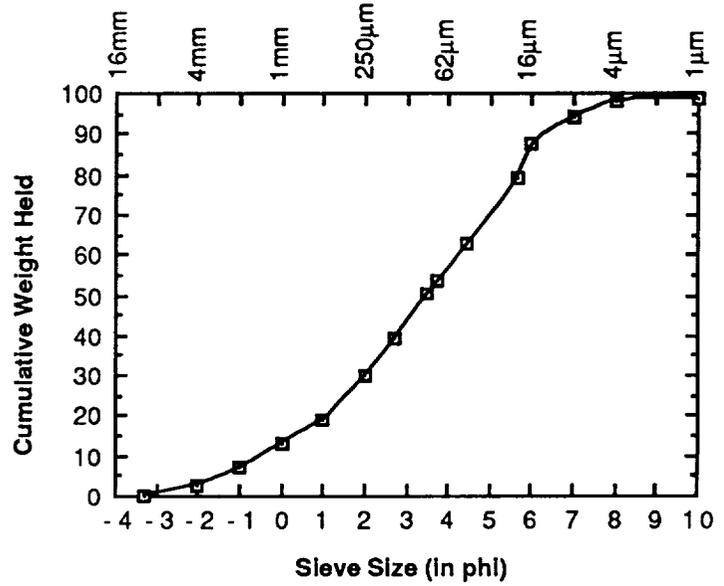
**MATURITY INDEX:**

$I_g/FeO = 85$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	2.84
2000.00	4.13
1000.00	6.23
500.00	5.94
250.00	11.03
150.00	9.26
90.00	10.67
75.00	3.33
45.00	9.49
20.00	16.20
15.60	8.69
7.80	6.33
3.90	3.94
1.00	0.93

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



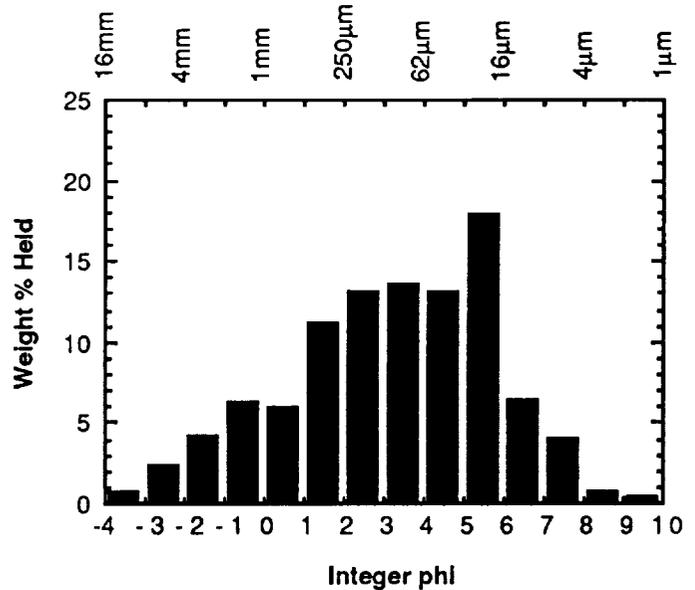
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.26
Median:	3.47
Mode:	5.50
Sorting:	2.65
Skewness:	-0.13
Kurtosis:	0.93

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.42
16	0.47
25	1.56
50	3.47
75	5.37
84	5.84
95	7.19

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 68500**  
 (subsample 68501,50)  
 W.V. Engelhardt PI

**LOCATION COMMENTS:**

Soil 69500 accompanied rake sample 68510 at Station 8, on the north rim of a 10-15 meter crater in the vicinity of visible rays from South Ray crater. Astronauts reported several glass fragments scattered over the surface in this area, some reflecting red and green in the sunlight. The sample area is generally free of large rocks.

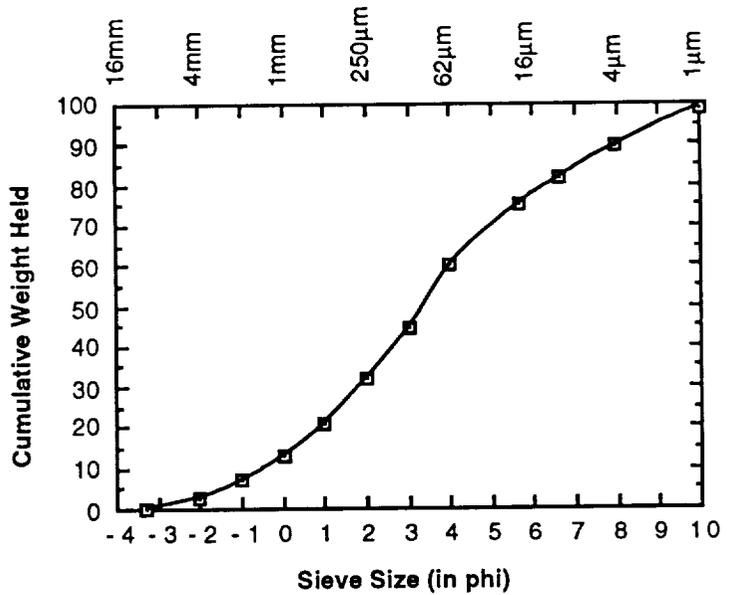
**MATURITY INDEX:**

$I_g/FeO = 85$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	2.85
2000	4.14
1000	6.23
500	7.99
250	10.99
125	12.02
63	15.97
20	15.11
10	6.7
4	7.73
1	9.27

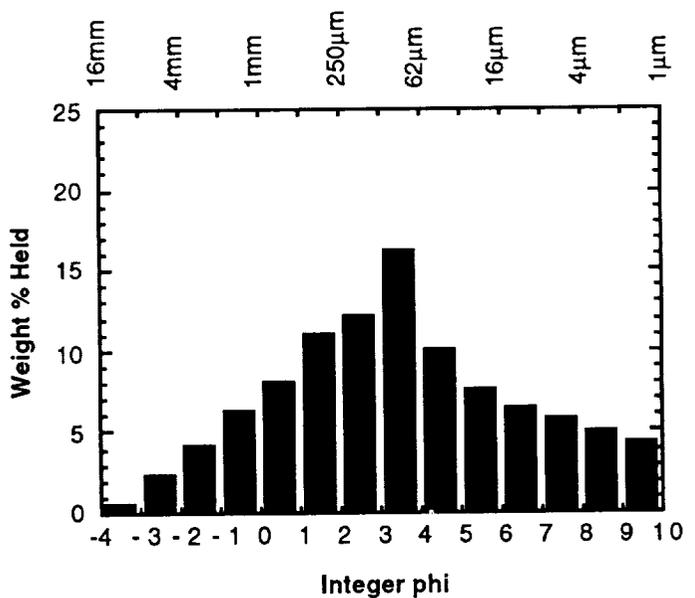
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.57
Median:	3.37
Mode:	3.5
Sorting:	3.23
Skewness:	0.09
Kurtosis:	1.01

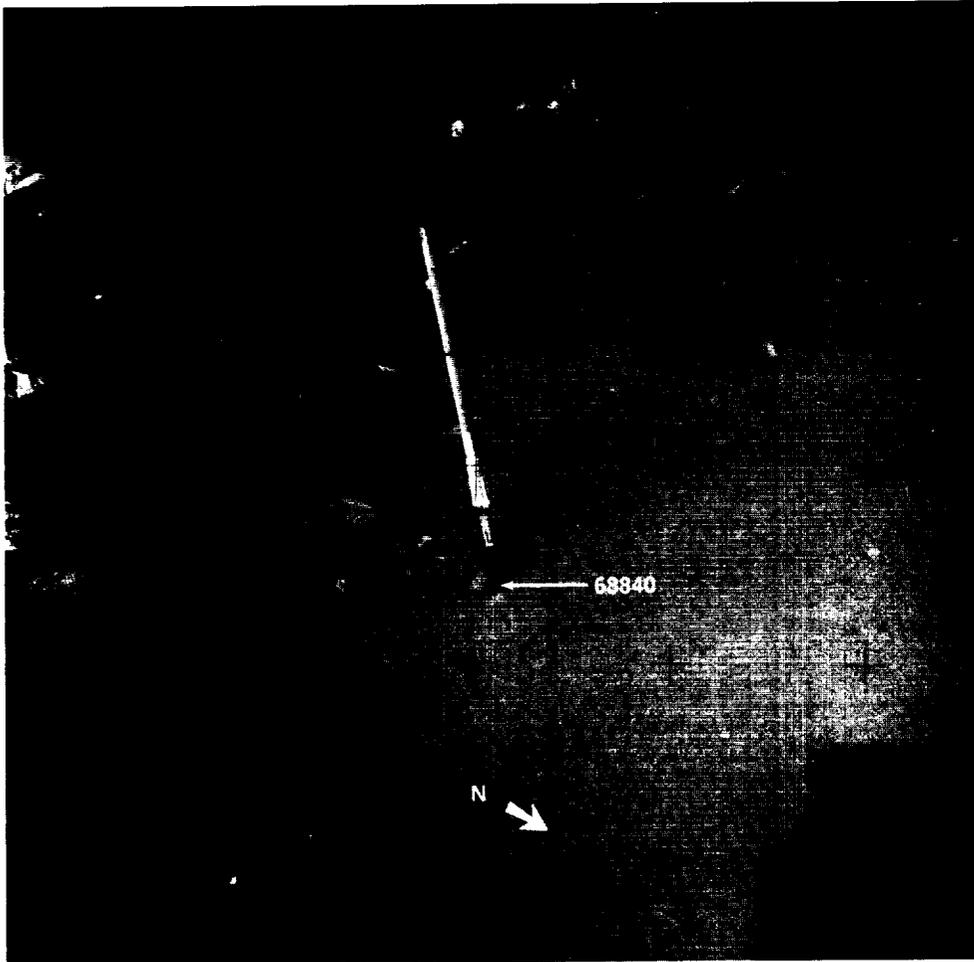
**SIZE DISTRIBUTION HISTOGRAM**



**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.43
16	0.38
25	1.37
50	3.37
75	5.6
84	6.97
95	9.05





68840 Sample Environment

AS16-108-17702

Taken during sampling.

Soil: 68840  
(subsample 68841,13)  
E.A. King PI

LOCATION COMMENTS:

This is a reference soil collected 35 meters east of a 15 meter diameter crater and 6 meters north of the boulder from which "fillet" soil 68820 is taken. Fragments larger than 1 meter in the sample area are sparse, the soil is loose, and craters larger than 5 cm are sparse.

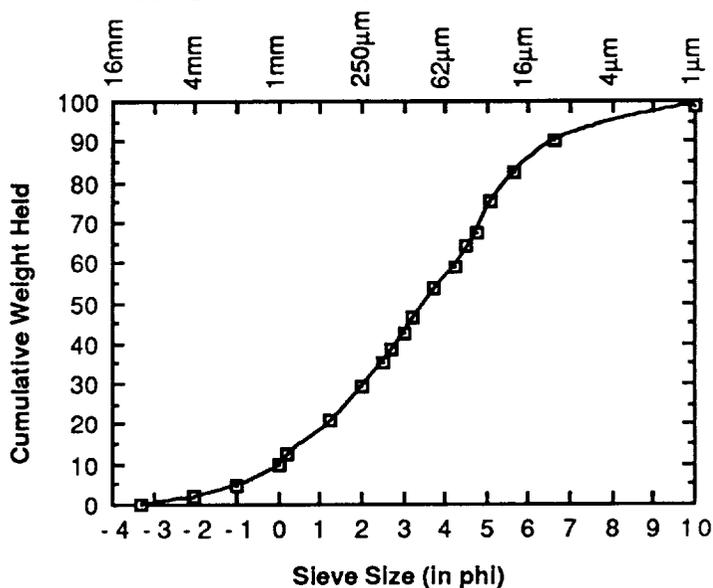
MATURITY INDEX:

$I_g/FeO = 70$  (mature)

TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	1.68
2000.00	2.98
1000.00	4.82
841.00	2.91
420.00	8.27
250.00	8.46
177.00	6.09
150.00	3.41
125.00	3.84
105.00	4.12
74.00	6.94
53.00	5.56
44.00	4.74
37.00	3.69
30.00	7.60
20.00	7.32
10.00	8.00
1.00	8.56

CUMULATIVE WEIGHT DISTRIBUTION CURVE



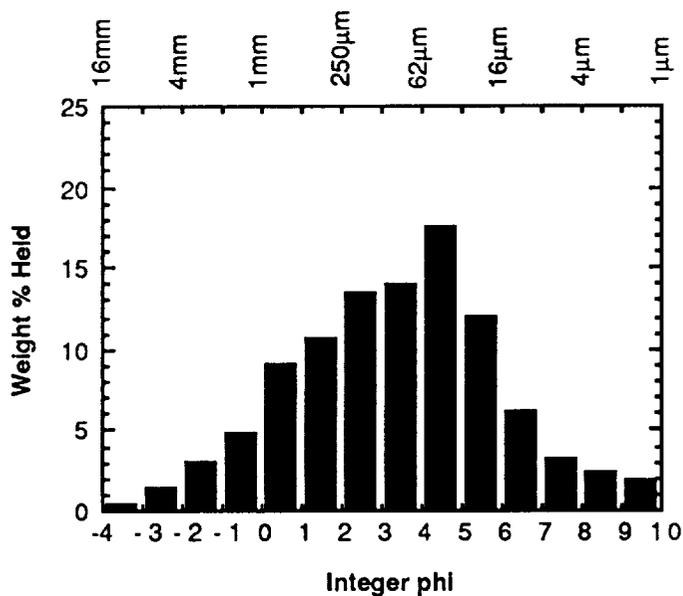
GRAPHIC AND MOMENT MEASURES

Mean:	3.32
Median:	3.49
Mode:	4.50
Sorting:	2.65
Skewness:	-0.04
Kurtosis:	1.09

MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-0.91
16	0.68
25	1.65
50	3.49
75	5.05
84	5.80
95	8.11

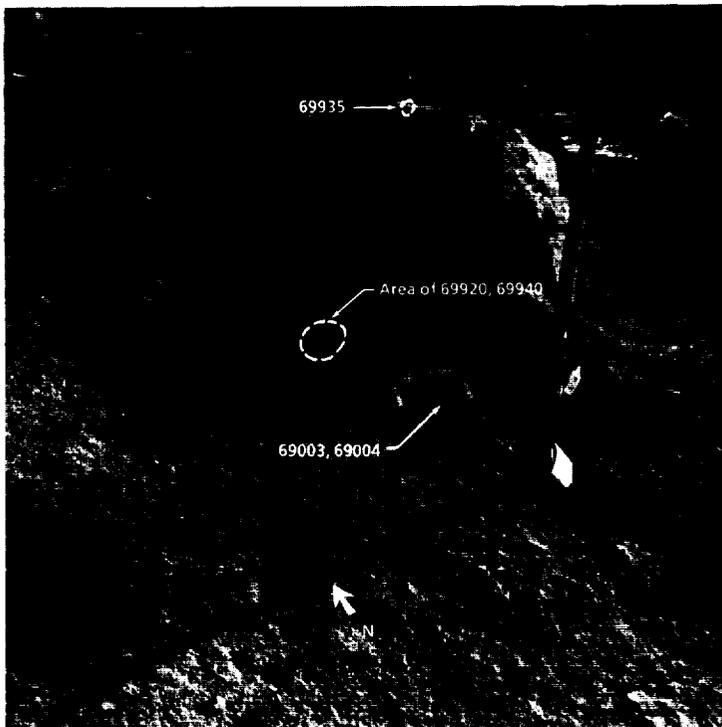
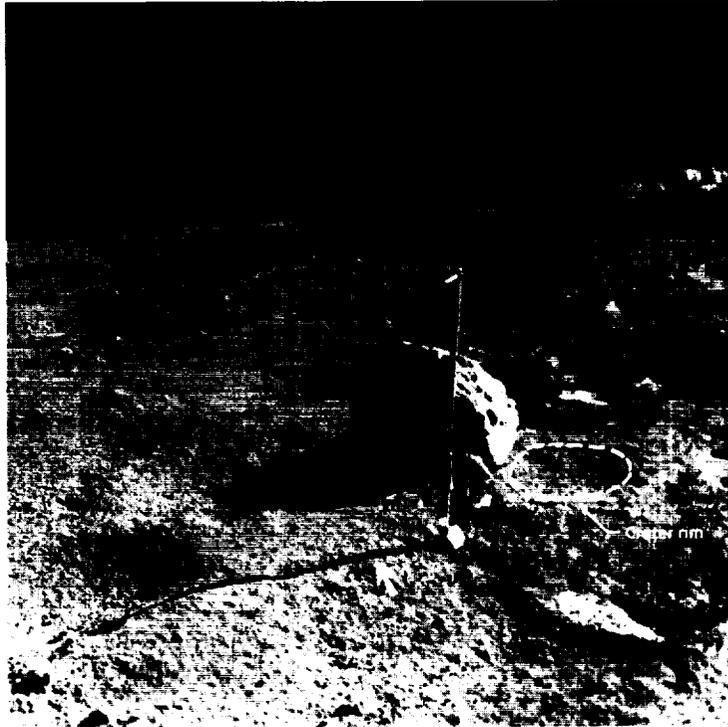
SIZE DISTRIBUTION HISTOGRAM



69940 Sample Environment

AS16-107-17560

Pre-sampling, 69920 and 69940 were collected from the area shaded by the boulder.



69940 Sample Environment

AS16-107-17559

Pre-sampling close up.

**Soil: 69940**  
 (subsample 69941,15)  
 E.A. King PI

**LOCATION COMMENTS:**

69920 and 69940 are in the shadow of a .5 meter boulder. 69920 is a "skim" sample and 69940 is a "scoop" sample from several cm below the surface. Both soils were collected at Station 9, 15 meters north of a 40 meter crater. Large fragments are relatively sparse at the sample site, surface is relatively firm, craters 5-30 cm are common but larger ones are sparse.

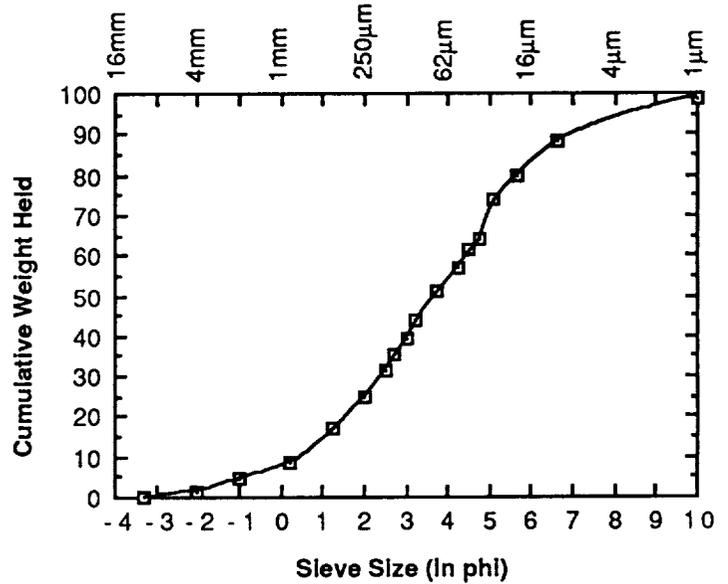
**MATURITY INDEX:**

$I_g/FeO = 85$  (mature)

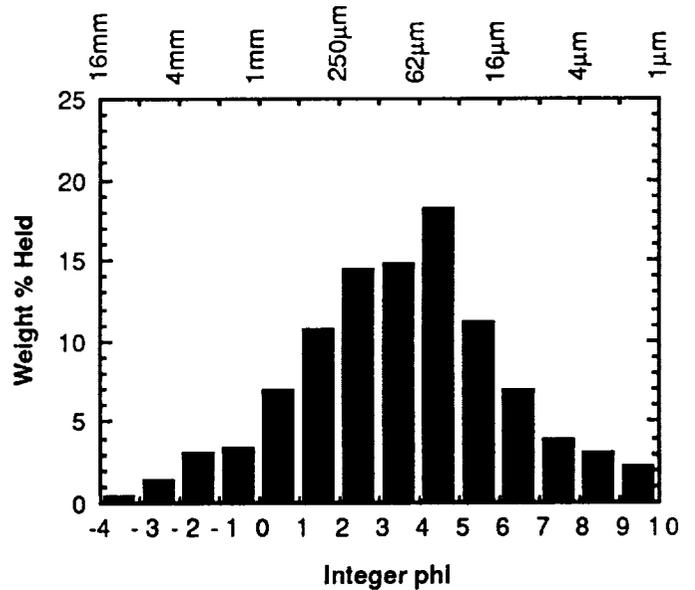
**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	1.58
2000.00	2.86
841.00	4.21
420.00	8.14
250.00	8.24
177.00	6.64
150.00	3.46
125.00	4.21
105.00	4.54
74.00	7.28
53.00	5.72
44.00	4.72
37.00	2.28
30.00	9.73
20.00	6.29
10.00	8.63
1.00	10.47

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.64
Median:	3.67
Mode:	4.50
Sorting:	2.63
Skewness:	0.00
Kurtosis:	1.19

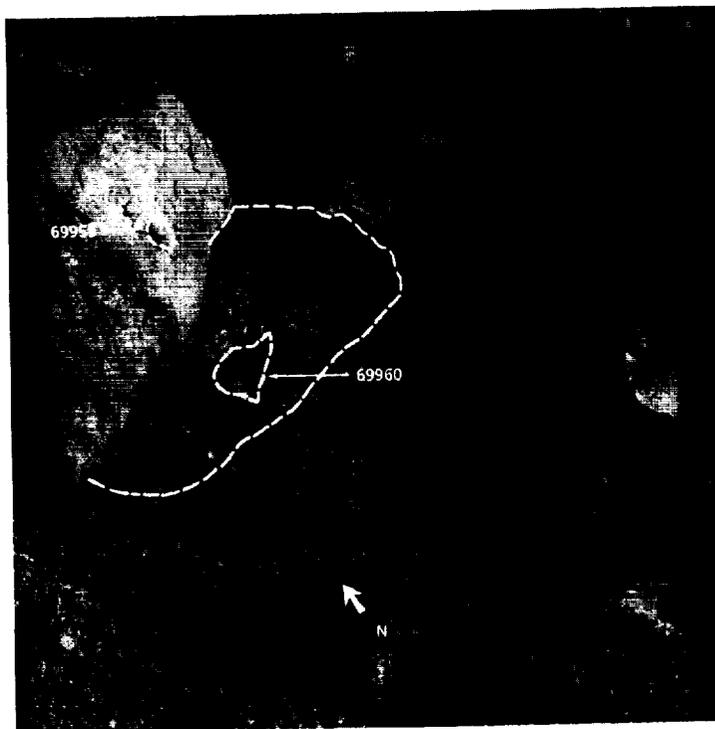
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.82
16	1.17
25	2.00
50	3.67
75	5.17
84	6.07
95	8.41

69960 Sample Environment

AS16-107-17574

Pre-sampling, after rolling.



69960 Sample Environment

AS16-107-17579

Post-sampling, after rolling.

Soil: 69960  
(subsample 69961,14)  
E.A. King PI

LOCATION COMMENTS:

69960 was collected at Station 9 from under a .5 meter boulder after it had been rolled over. It is part of a "surface sampler" including soils 69920, 69940, and 69960 and fragments 69003, 69004, and 66935. Large fragments are relatively sparse at the sample site, surface is relatively firm, craters 5-30 cm are common but larger ones are sparse.

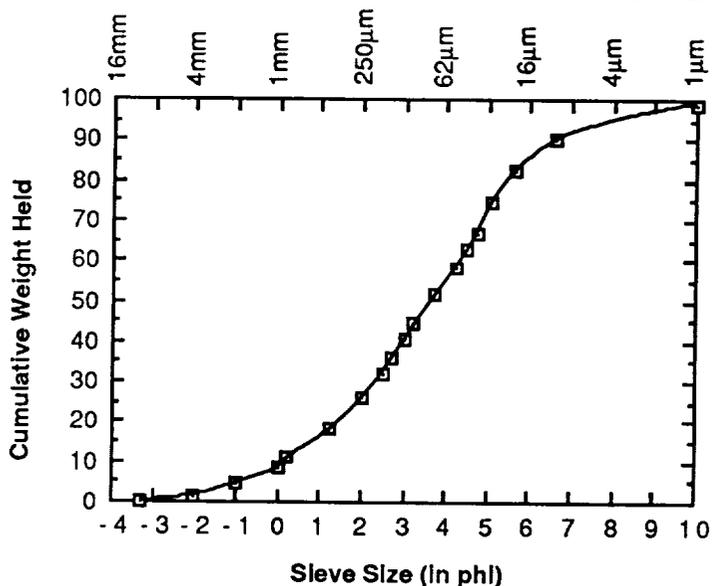
MATURITY INDEX:

$I_s/FeO = 92$  (mature)

TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	1.42
2000.00	2.92
1000.00	4.10
841.00	2.43
420.00	7.34
250.00	7.80
177.00	6.16
150.00	3.93
125.00	4.11
105.00	4.33
74.00	7.19
53.00	6.39
44.00	4.50
37.00	3.81
30.00	8.27
20.00	7.66
10.00	8.02
1.00	8.63

CUMULATIVE WEIGHT DISTRIBUTION CURVE



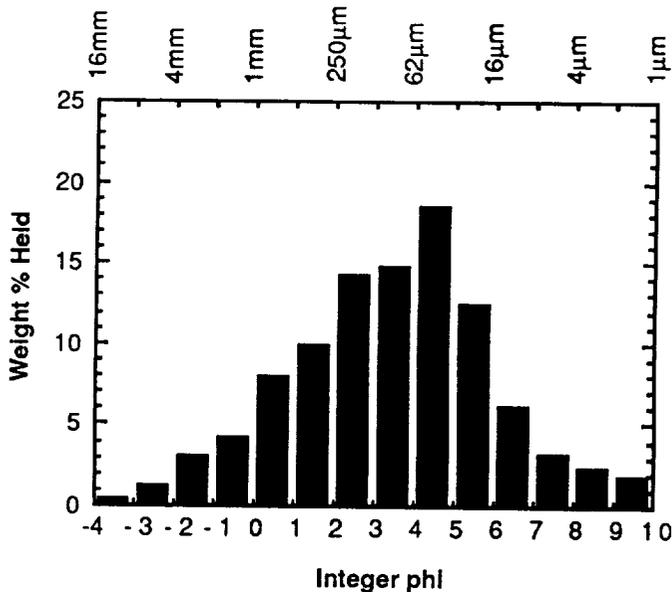
GRAPHIC AND MOMENT MEASURES

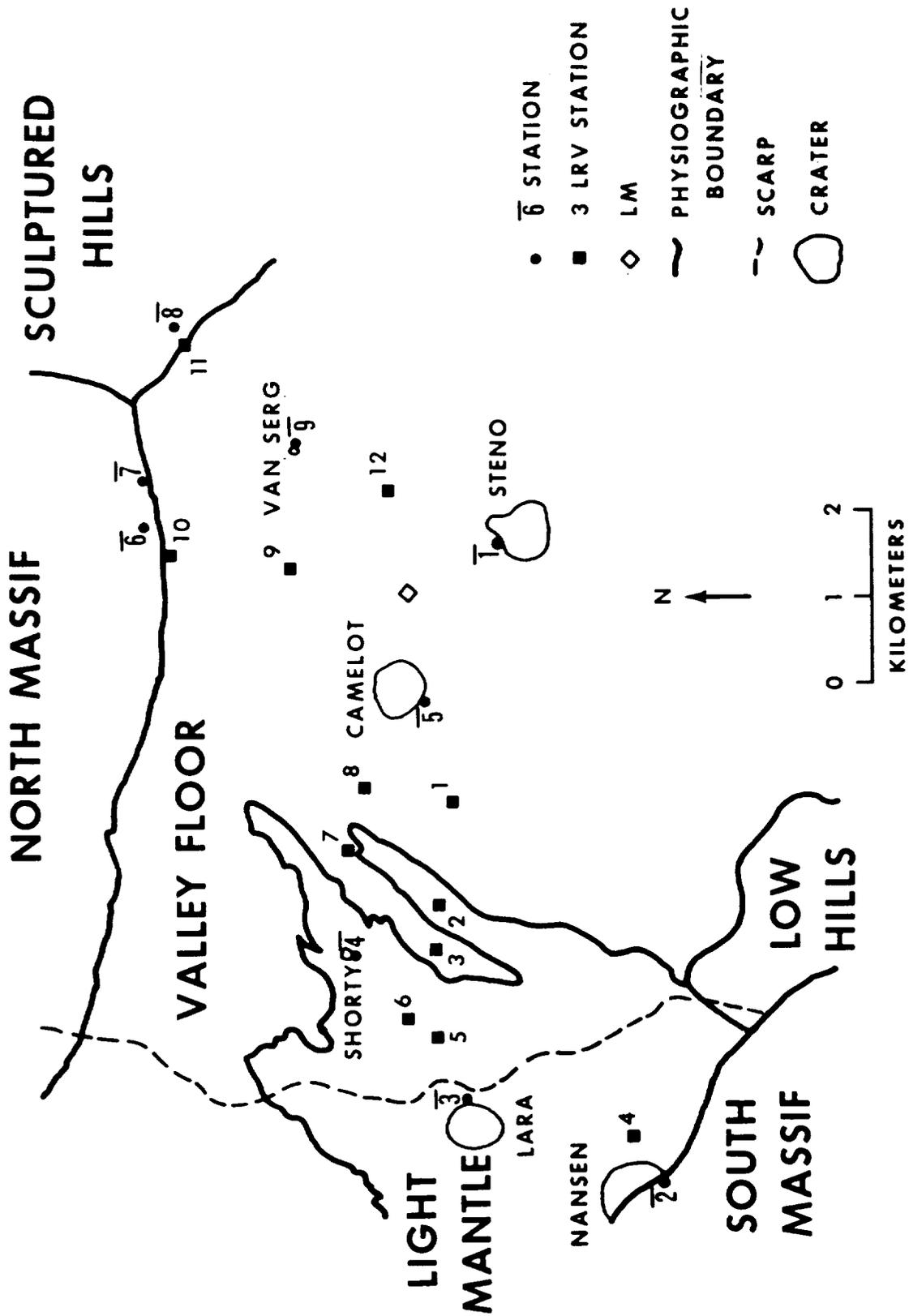
Mean:	3.47
Median:	3.63
Mode:	4.50
Sorting:	2.56
Skewness:	-0.05
Kurtosis:	1.16

MOMENT MEASURE DATA

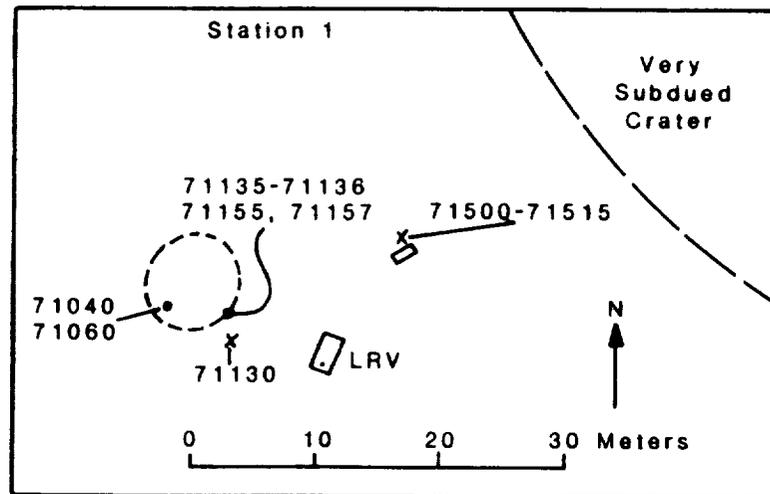
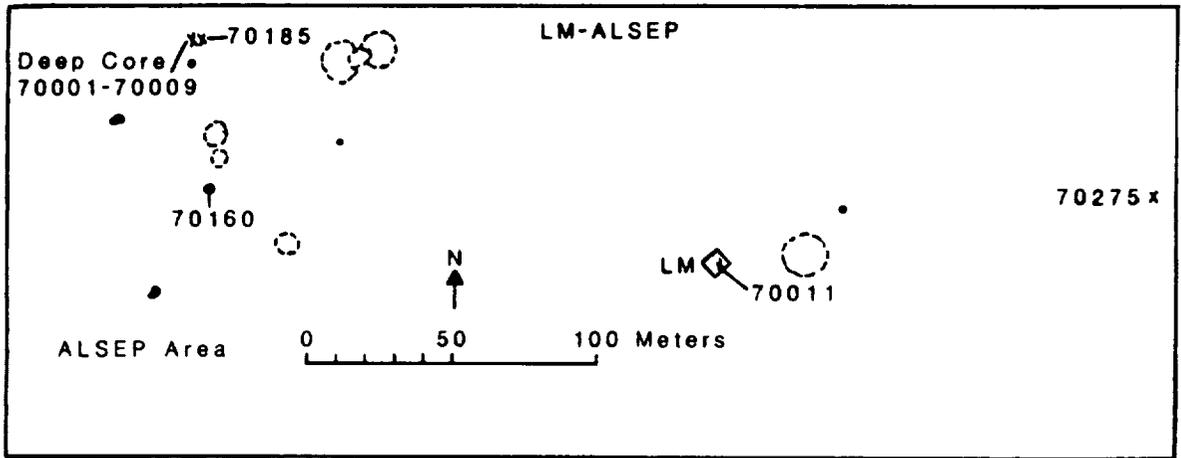
Wt % held	$\phi$ size
5	-0.80
16	0.96
25	1.91
50	3.63
75	5.08
84	5.81
95	8.12

SIZE DISTRIBUTION HISTOGRAM

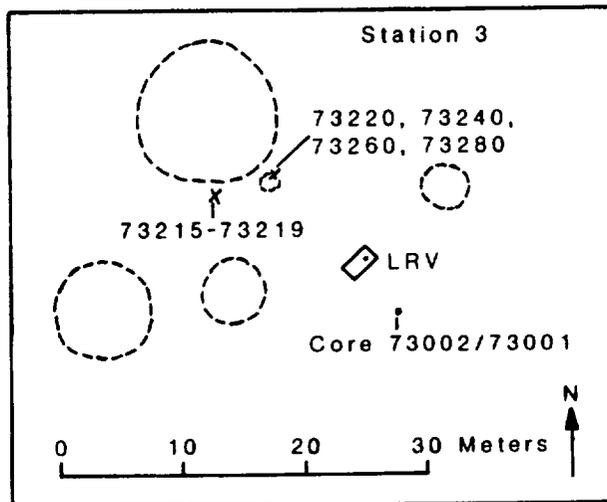
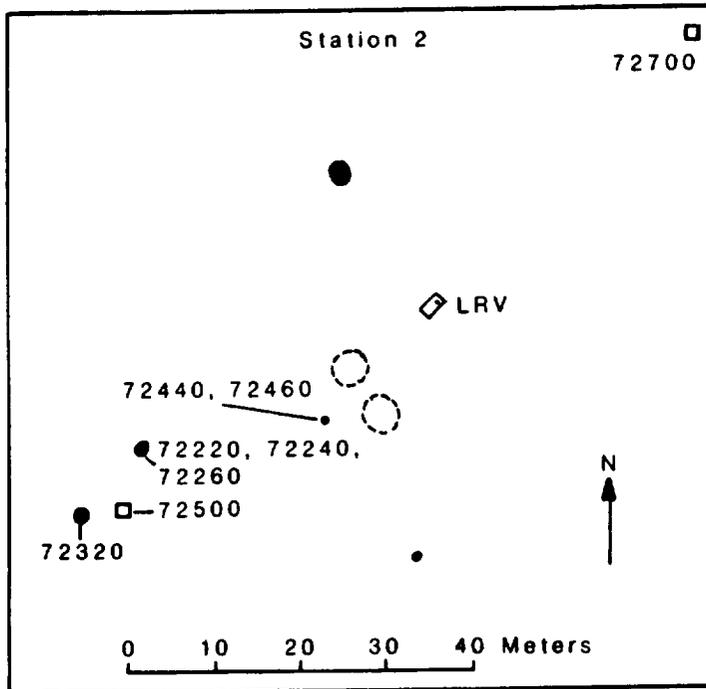




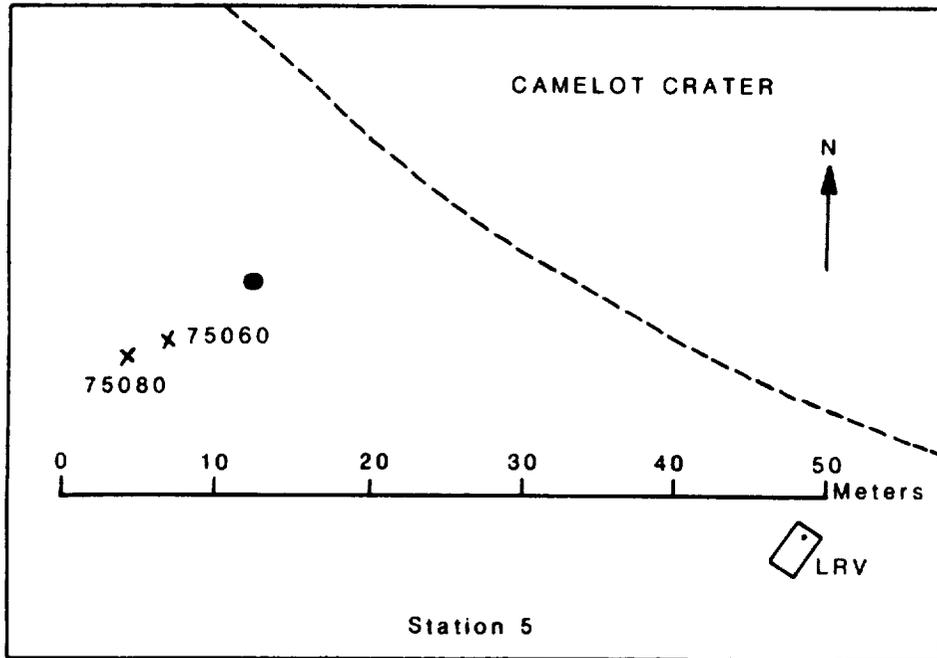
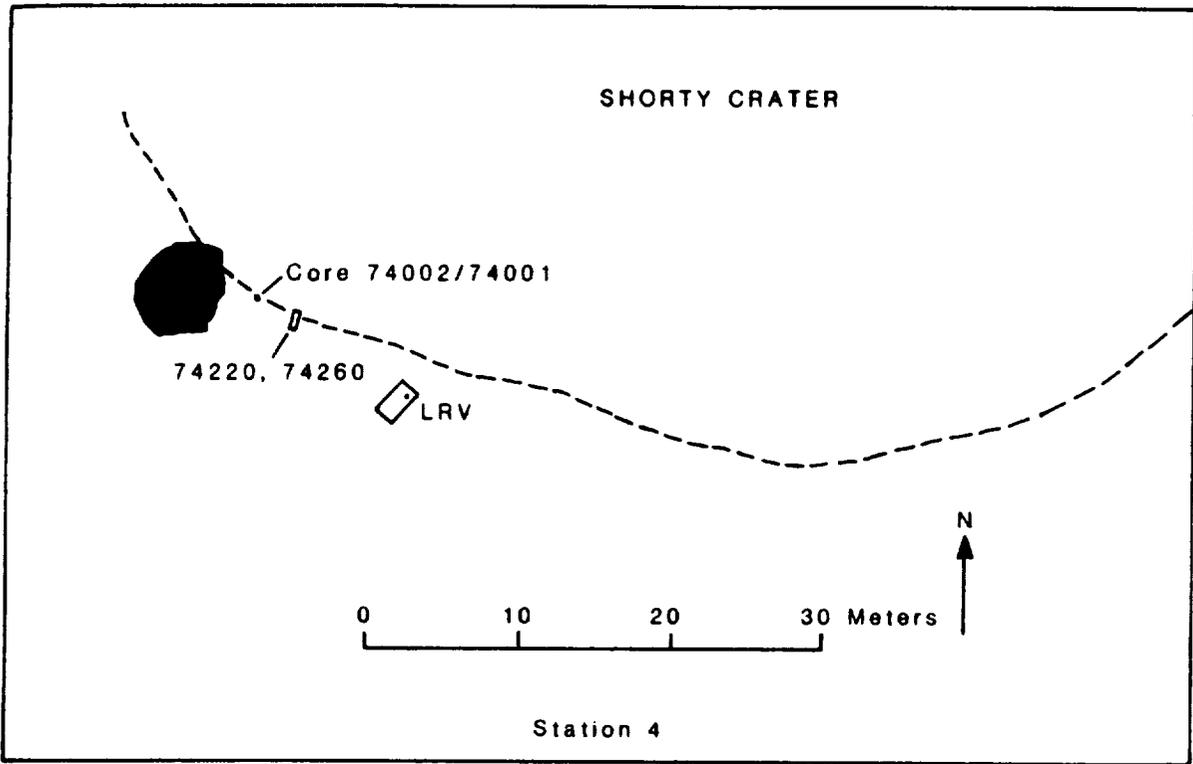
Map of Apollo 17 landing site from the Handbook of Lunar Soils.



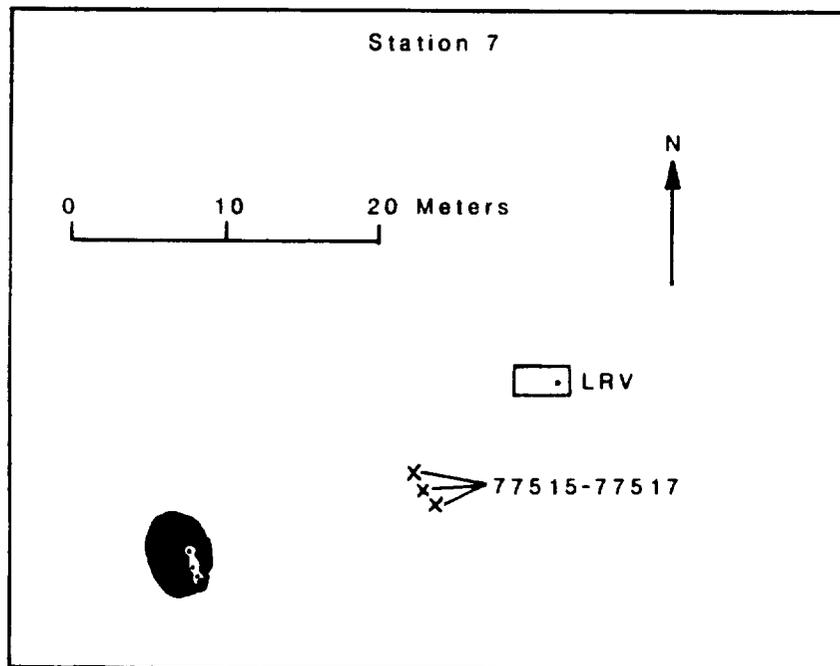
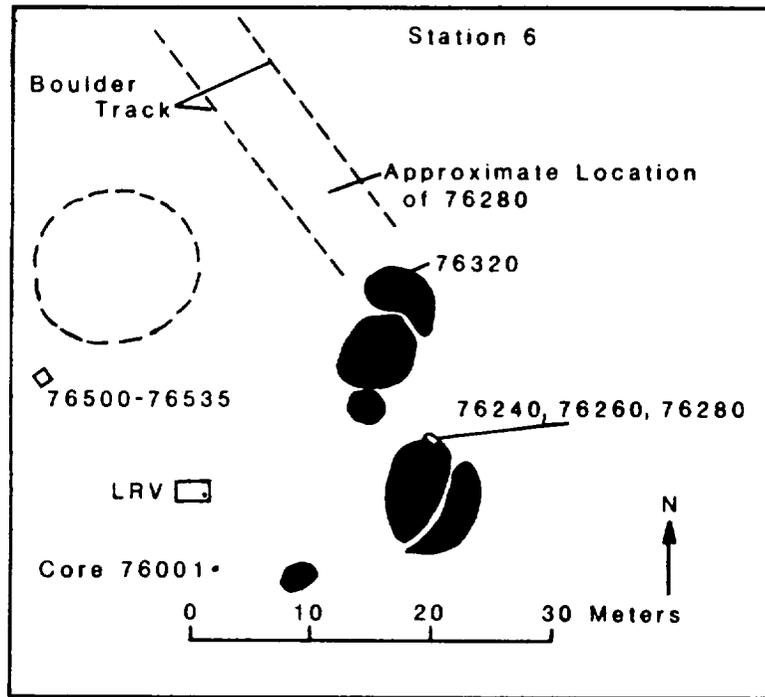
Apollo 17 sample collection sites  
from the Handbook of Lunar Soils.



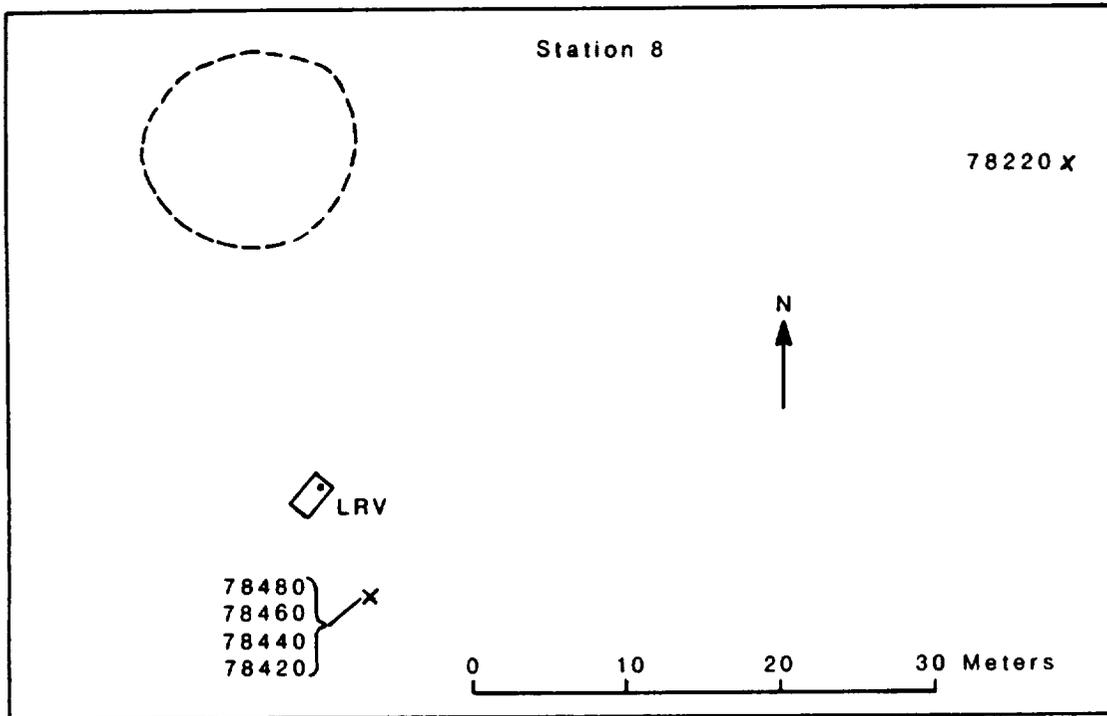
Apollo 17 sample collection sites  
from the Handbook of Lunar Soils.



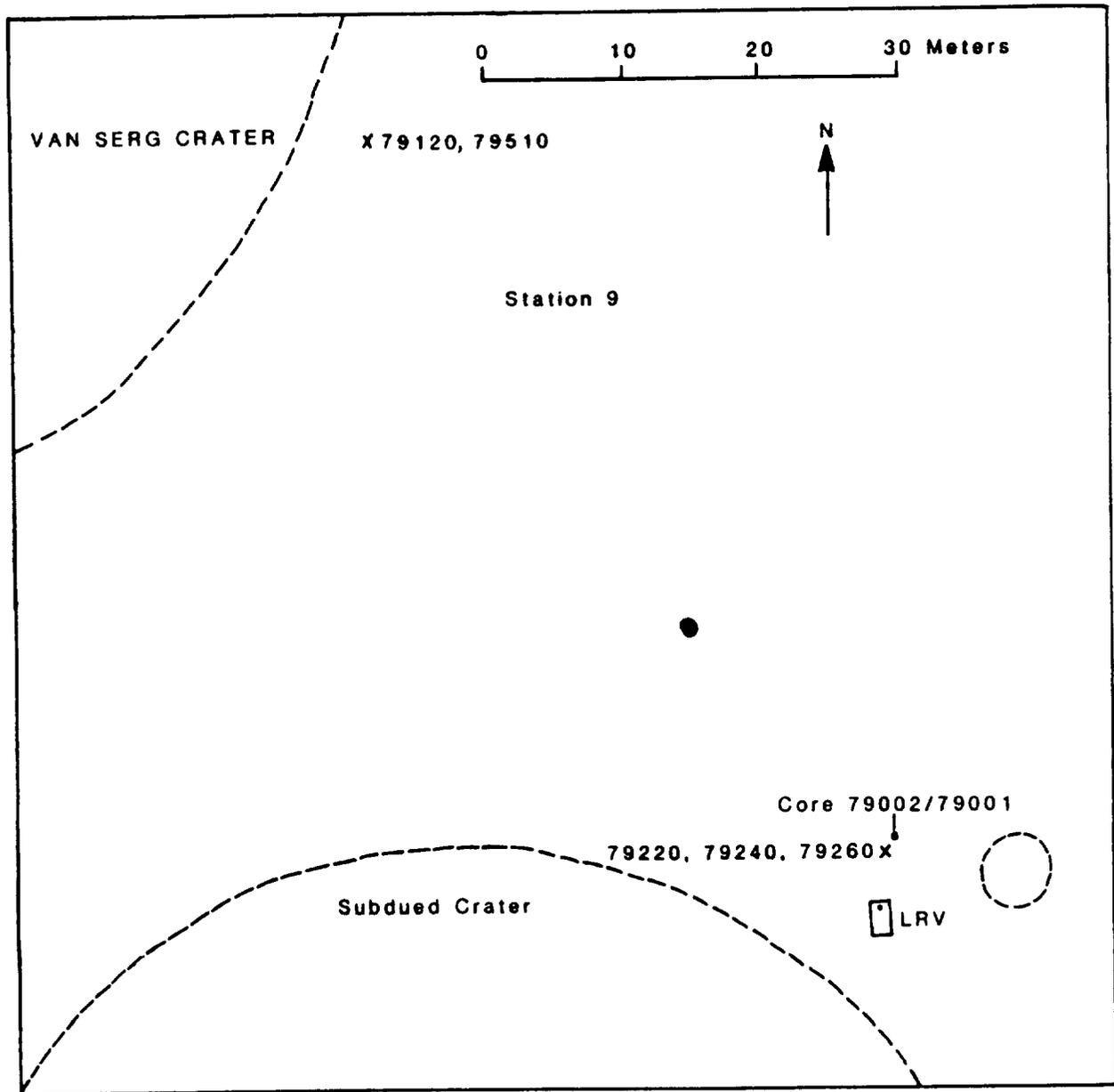
**Apollo 17 sample collection sites  
from the Handbook of Lunar Soils.**



Apollo 17 sample collection sites  
from the Handbook of Lunar Soils.



Apollo 17 sample collection sites  
from the Handbook of Lunar Soils.



Apollo 17 sample collection sites  
from the Handbook of Lunar Soils.



70001 - 70009 Sample  
Environment

AS17-134-20504

During sampling. ALSEP  
site is in the background.

# Soil: 70008

(subsample 70008,245) (Core; depth below surface, 59.8 - 60.3 cm)

D.S. McKay PI

## LOCATION COMMENTS:

70001-70009 are the segments of the deep core drilled at the ALSEP site 180 meters west of the LM. The sample area is flat, level and has 2-3% block cover. Craters 10 cm to 1 meter in size are common, fines are coherent below 3-4 cm. Drill penetration to 3.2 meters alternated between easy and difficult. The bottom 20 cm were very difficult to drill. The base material is cohesive, fragmental.

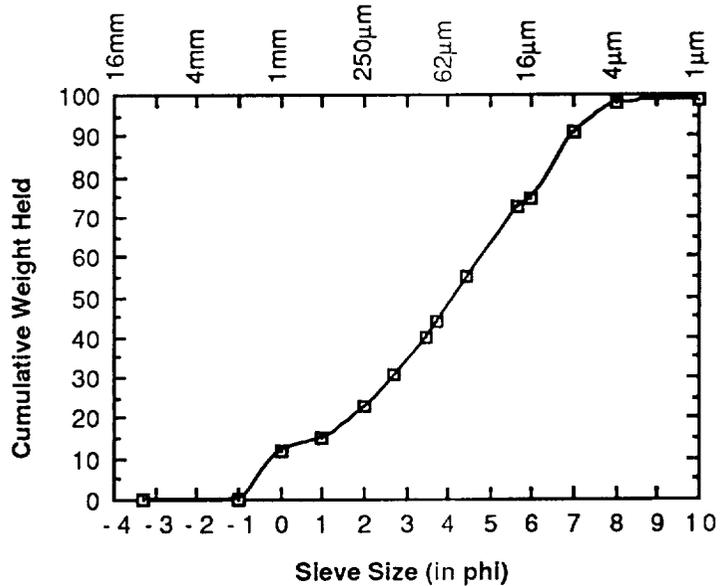
## MATURITY INDEX:

$I_s/FcO = 25$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	0.00
1000.00	12.02
500.00	2.85
250.00	7.87
150.00	7.72
90.00	9.45
75.00	3.95
45.00	10.97
20.00	17.64
15.60	2.32
7.80	16.05
3.90	7.13
1.00	1.03

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



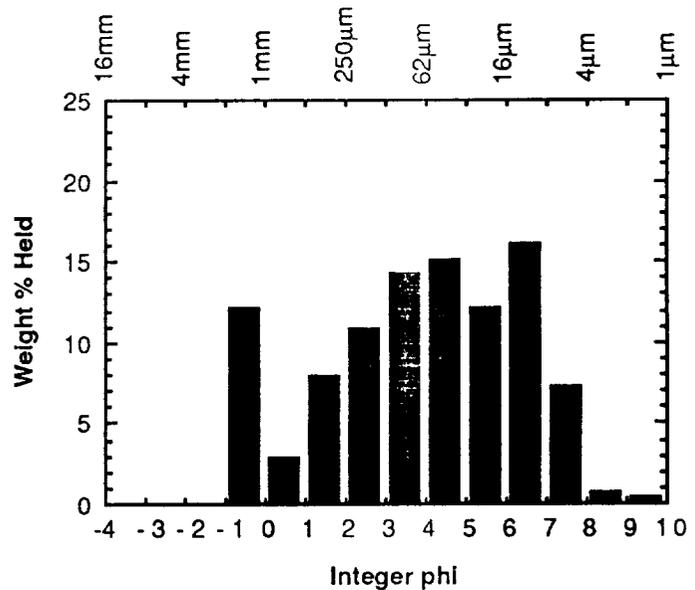
## GRAPHIC AND MOMENT MEASURES

Mean:	3.97
Median:	4.15
Mode:	6.50
Sorting:	2.52
Skewness:	-0.13
Kurtosis:	0.85

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-0.35
16	1.21
25	2.23
50	4.15
75	6.03
84	6.54
95	7.49

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 70008

(subsample 70008,239) (Core; depth below surface, 54.8 - 56.8 cm)

D.S. McKay PI

## LOCATION COMMENTS:

70001-70009 are the segments of the deep core drilled at the ALSEP site 180 meters west of the LM. The sample area is flat, level and has 2-3% block cover. Craters 10 cm to 1 meter in size are common, fines are coherent below 3-4 cm. Drill penetration to 3.2 meters alternated between easy and difficult. The bottom 20 cm were very difficult to drill. The base material is cohesive, fragmental.

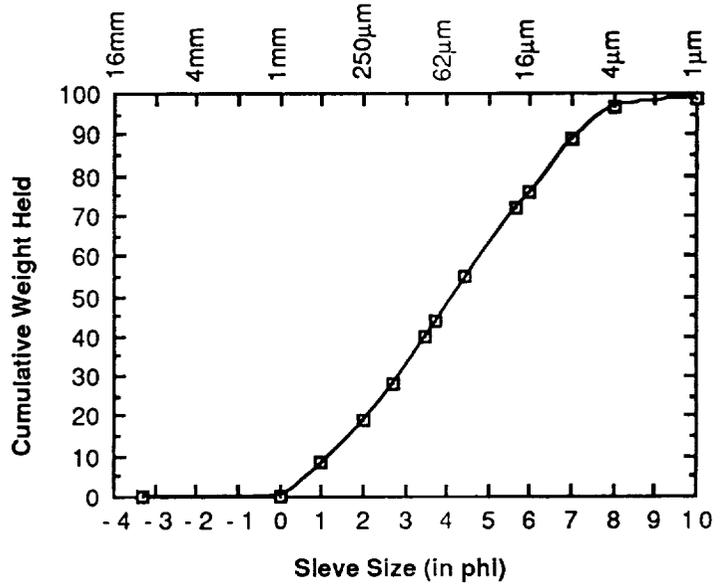
## MATURITY INDEX:

$I_p/FcO = 23$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	8.31
250.00	10.46
150.00	9.59
90.00	11.22
75.00	4.03
45.00	11.37
20.00	17.20
15.60	3.63
7.80	13.26
3.90	7.80
1.00	2.14

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



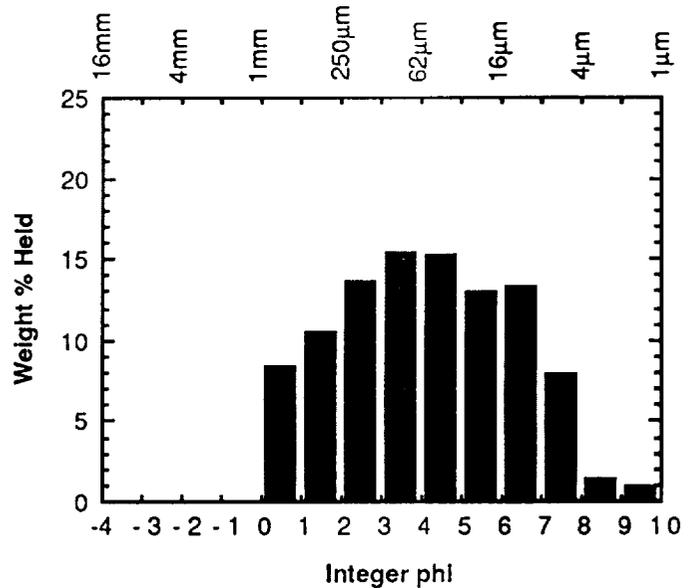
## GRAPHIC AND MOMENT MEASURES

Mean:	4.17
Median:	4.15
Mode:	3.50
Sorting:	2.27
Skewness:	0.01
Kurtosis:	0.84

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.64
16	1.76
25	2.49
50	4.15
75	5.92
84	6.60
95	7.66

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 70008

(subsample 70008,235) (Core; depth below surface, 53.8 - 54.3 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

70001-70009 are the segments of the deep core drilled at the ALSEP site 180 meters west of the LM. The sample area is flat, level and has 2-3% block cover. Craters 10 cm to 1 meter in size are common, fines are coherent below 3-4 cm. Drill penetration to 3.2 meters alternated between easy and difficult. The bottom 20 cm were very difficult to drill. The base material is cohesive, fragmental.

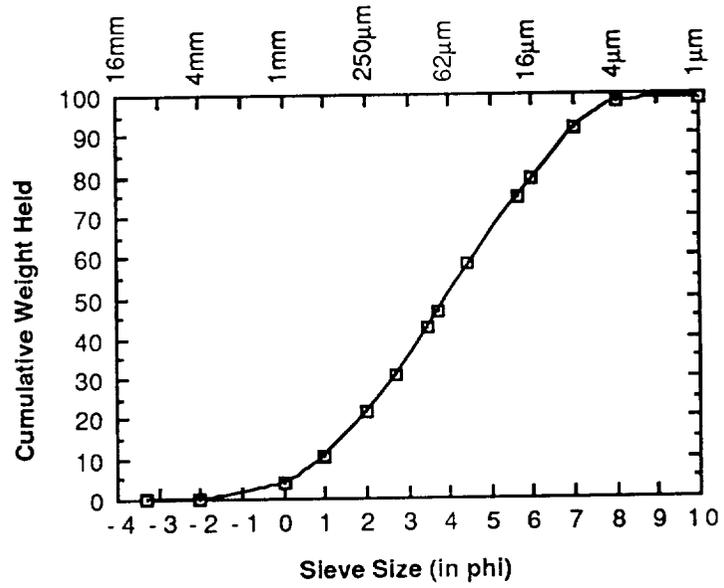
## MATURITY INDEX:

$I_g/\text{FeO} = 16$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
1000.00	3.79
500.00	6.94
250.00	10.82
150.00	9.41
90.00	11.43
75.00	4.33
45.00	11.38
20.00	16.56
15.60	4.34
7.80	12.64
3.90	6.27
1.00	1.10

CUMULATIVE WEIGHT DISTRIBUTION CURVE



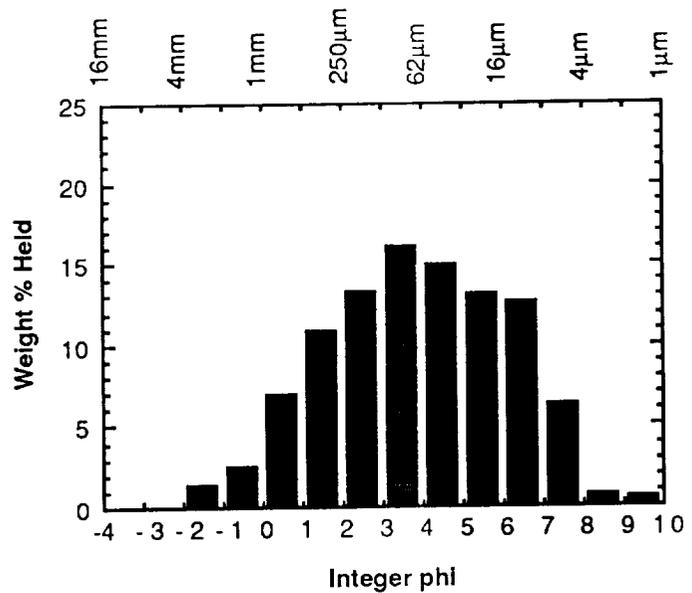
## GRAPHIC AND MOMENT MEASURES

Mean:	3.95
Median:	3.94
Mode:	3.50
Sorting:	2.31
Skewness:	-0.01
Kurtosis:	0.87

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.26
16	1.52
25	2.28
50	3.94
75	5.67
84	6.40
95	7.45

SIZE DISTRIBUTION HISTOGRAM



# Soil: 70008

(subsample 70008,231) (Core; depth below surface, 44.8 - 46.8 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

70001-70009 are the segments of the deep core drilled at the ALSEP site 180 meters west of the LM. The sample area is flat, level and has 2-3% block cover. Craters 10 cm to 1 meter in size are common, fines are coherent below 3-4 cm. Drill penetration to 3.2 meters alternated between easy and difficult. The bottom 20 cm were very difficult to drill. The base material is cohesive, fragmental.

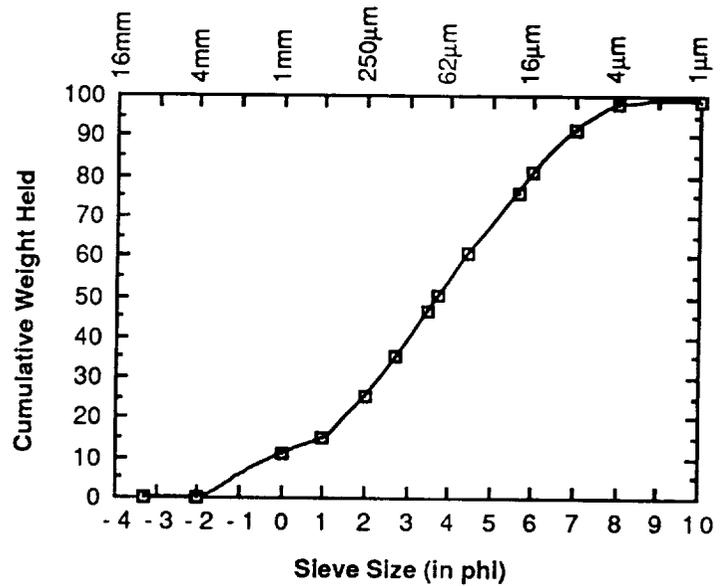
## MATURITY INDEX:

$I_s/FcO = 12$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.00
1000.00	10.88
500.00	3.96
250.00	10.52
150.00	9.63
90.00	11.19
75.00	4.03
45.00	10.62
20.00	15.25
15.60	4.83
7.80	10.55
3.90	6.31
1.00	1.23

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



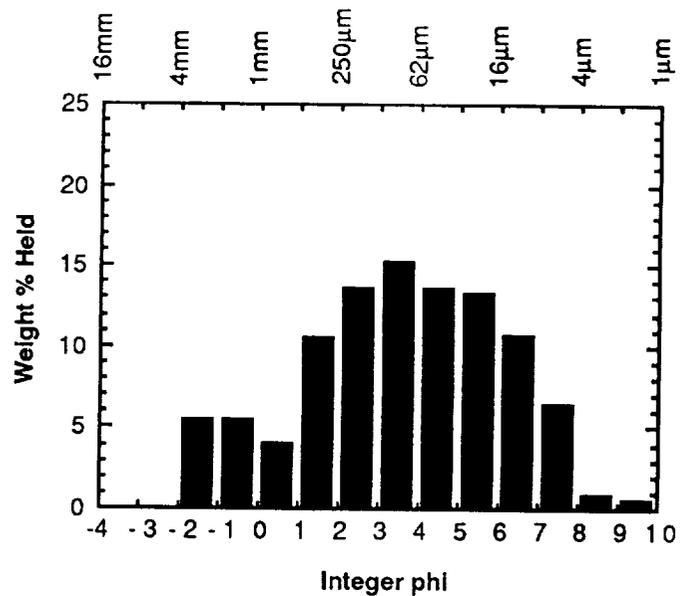
## GRAPHIC AND MOMENT MEASURES

Mean:	3.71
Median:	3.72
Mode:	3.50
Sorting:	2.57
Skewness:	-0.06
Kurtosis:	0.97

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-1.06
16	1.16
25	1.97
50	3.72
75	5.56
84	6.26
95	7.48

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 70008

(subsample 70008,228) (Core; depth below surface, 40.8 - 42.3 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

70001-70009 are the segments of the deep core drilled at the ALSEP site 180 meters west of the LM. The sample area is flat, level and has 2-3% block cover. Craters 10 cm to 1 meter in size are common, fines are coherent below 3-4 cm. Drill penetration to 3.2 meters alternated between easy and difficult. The bottom 20 cm were very difficult to drill. The base material is cohesive, fragmental.

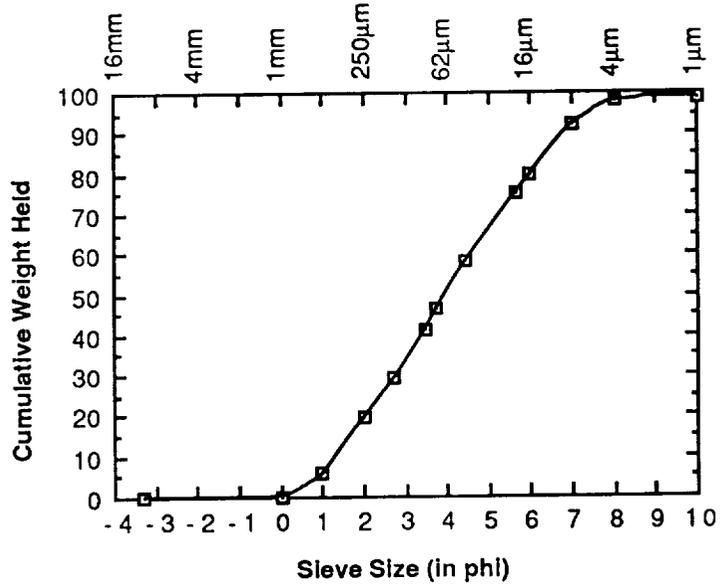
## MATURITY INDEX:

$I_g/FcO = 9$  (immature)

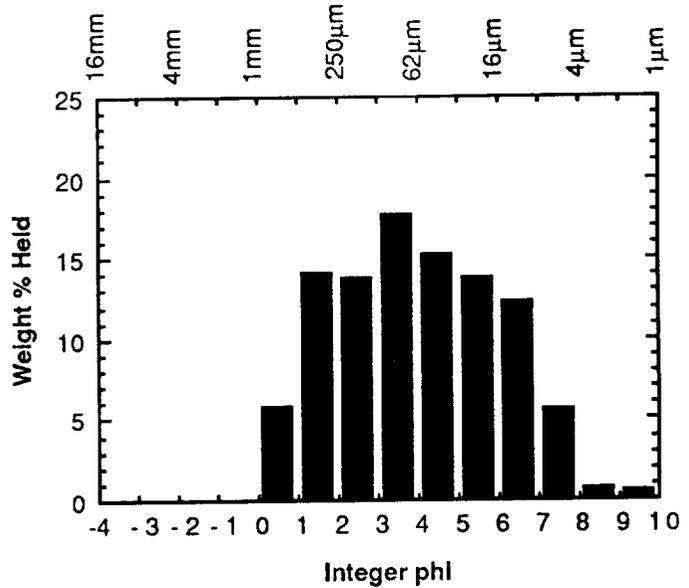
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	5.65
250.00	13.98
150.00	9.82
90.00	11.93
75.00	5.21
45.00	11.91
20.00	16.72
15.60	4.80
7.80	12.24
3.90	5.59
1.00	1.16

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	3.99
Median:	3.93
Mode:	3.50
Sorting:	2.13
Skewness:	0.05
Kurtosis:	0.83

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.90
16	1.74
25	2.40
50	3.93
75	5.63
84	6.31
95	7.41

# Soil: 70008

(subsample 70008,220) (Core; depth below surface, 30.8 - 31.3 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

70001-70009 are the segments of the deep core drilled at the ALSEP site 180 meters west of the LM. The sample area is flat, level and has 2-3% block cover. Craters 10 cm to 1 meter in size are common, fines are coherent below 3-4 cm. Drill penetration to 3.2 meters alternated between easy and difficult. The bottom 20 cm were very difficult to drill. The base material is cohesive, fragmental.

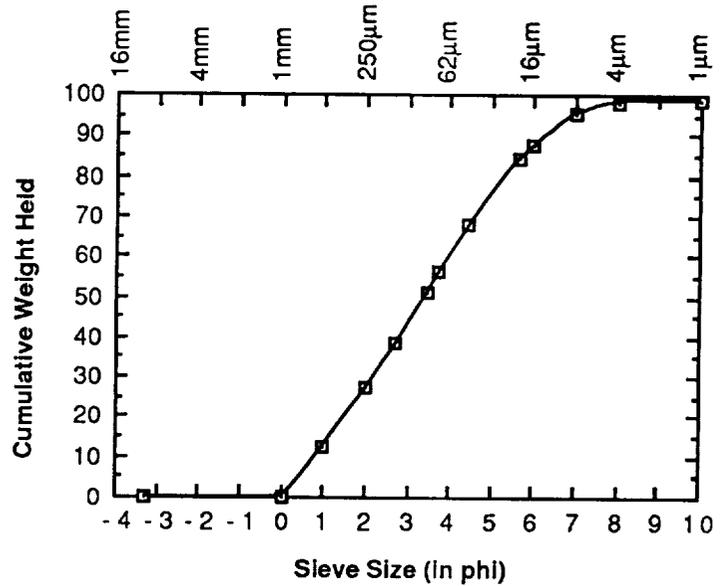
## MATURITY INDEX:

$I_s/\text{FeO} = 10$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	12.60
250.00	14.62
150.00	11.12
90.00	12.88
75.00	4.82
45.00	11.99
20.00	16.30
15.60	3.36
7.80	7.95
3.90	2.58
1.00	0.78

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



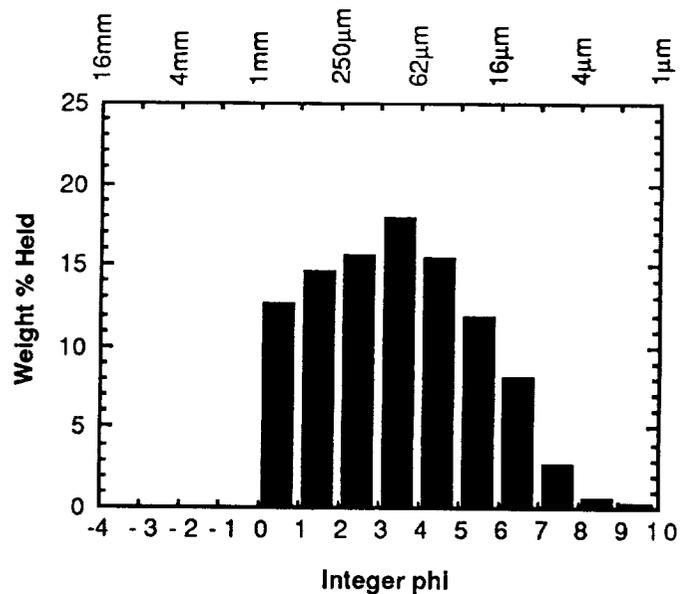
## GRAPHIC AND MOMENT MEASURES

Mean:	3.42
Median:	3.41
Mode:	3.50
Sorting:	2.07
Skewness:	0.04
Kurtosis:	0.85

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.44
16	1.24
25	1.85
50	3.41
75	4.94
84	5.61
95	6.87

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 70008

(subsample 70008,215) (Core; depth below surface, 24.8 - 26.8 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

70001-70009 are the segments of the deep core drilled at the ALSEP site 180 meters west of the LM. The sample area is flat, level and has 2-3% block cover. Craters 10 cm to 1 meter in size are common, fines are coherent below 3-4 cm. Drill penetration to 3.2 meters alternated between easy and difficult. The bottom 20 cm were very difficult to drill. The base material is cohesive, fragmental.

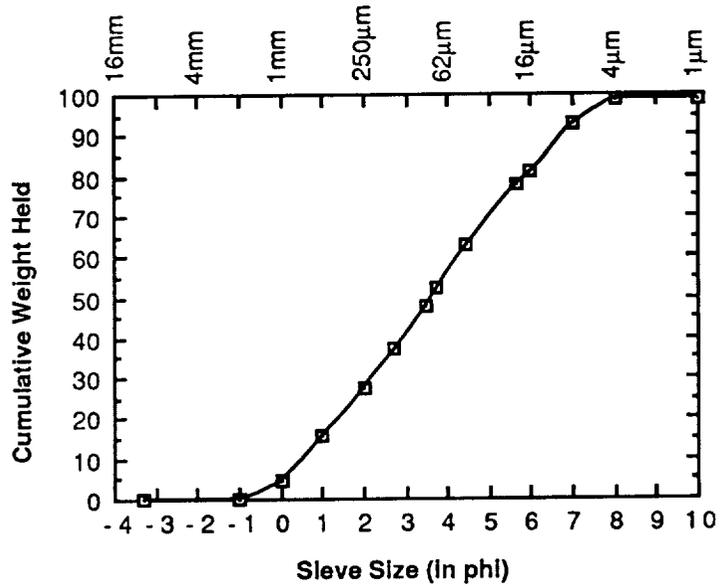
## MATURITY INDEX:

$I_s/FcO = 15$  (immature)

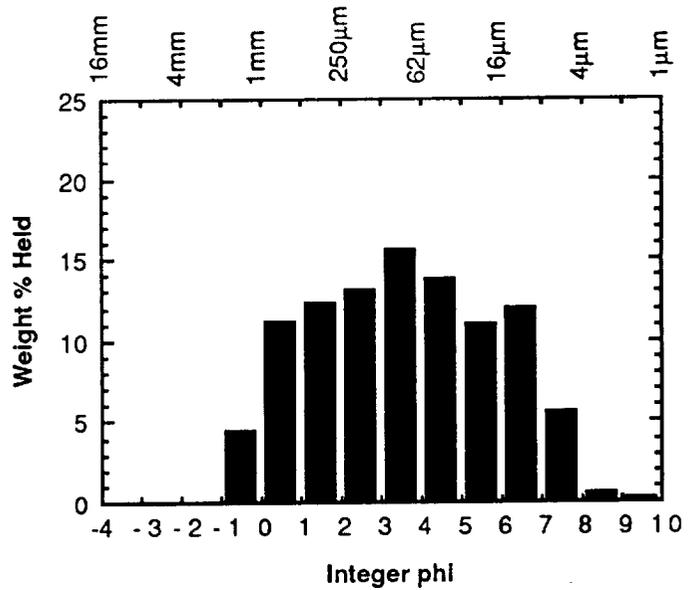
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
2000.00	0.00
1000.00	4.49
500.00	11.03
250.00	12.21
150.00	9.46
90.00	10.61
75.00	4.56
45.00	10.44
20.00	15.20
15.60	2.97
7.80	11.91
3.90	5.54
1.00	0.59

CUMULATIVE WEIGHT DISTRIBUTION CURVE



SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	3.65
Median:	3.60
Mode:	3.50
Sorting:	2.41
Skewness:	0.03
Kurtosis:	0.83

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.07
16	1.04
25	1.78
50	3.60
75	5.38
84	6.30
95	7.32



70160 Sample Environment

AS17-136-20718

Post-sampling photo of 1.5 m  
boulder and fillet. Low albedo parts  
of the soil may have been kicked and  
disturbed.

**Soil: 70160**  
(subsample 70161,1)  
D.S. McKay PI

**LOCATION COMMENTS:**

This is a fillet soil near the ALSEP central station, 180 meters west of the LM, at the base of a 1.5 meter boulder. Sample area has about 2-5% rock cover. Fines are darker when disturbed and compaction is greater in the fillet.

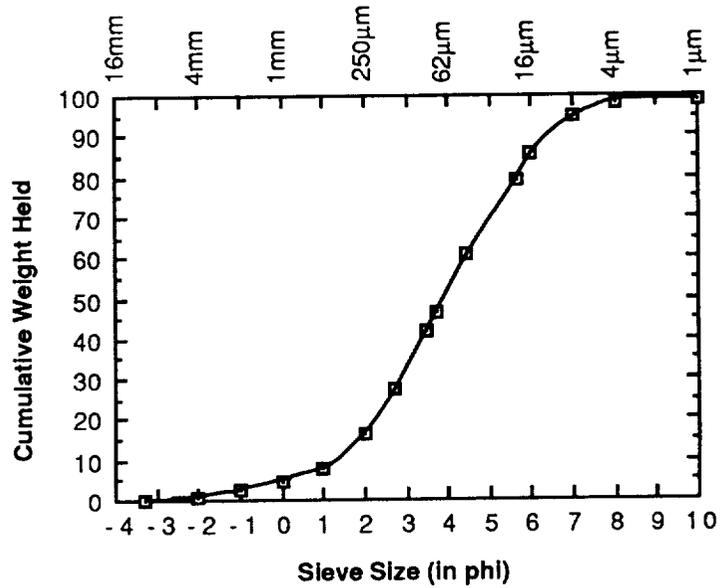
**MATURITY INDEX:**

$I_p/FeO = 46$  (submature)

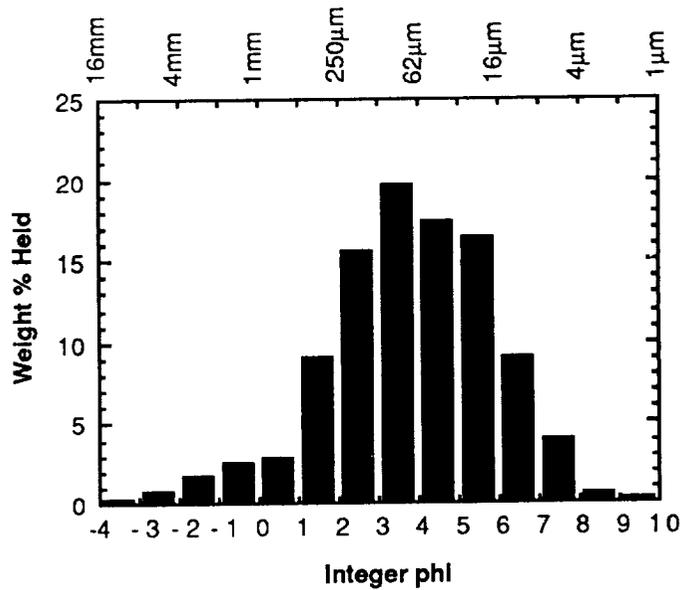
**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	0.79
2000.00	1.63
1000.00	2.45
500.00	2.84
250.00	8.94
150.00	10.49
90.00	14.37
75.00	5.20
45.00	14.07
20.00	18.52
15.60	6.18
7.80	9.01
3.90	3.84
1.00	0.67

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.92
Median:	3.91
Mode:	3.50
Sorting:	2.06
Skewness:	-0.04
Kurtosis:	1.04

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	0.05
16	1.94
25	2.60
50	3.91
75	5.38
84	5.91
95	7.11



70180 Sample Environment

AS17-136-20720

Pre-sampling, 70180  
collected along with 70185  
near the neutron flux site  
and the deep core.

**Soil: 70180**  
(subsample 70181,1)  
D.S. McKay PI

**LOCATION COMMENTS:**

This surface soil was collected 3 meters from the deep core site on the rim of an 8 meter blocky crater at the ALSEP. The sample area is flat and level with 2-3% block cover. Craters 10 cm to 1 meter in size are common, the fines are rather loose at the sample site on the rim of a .5 meter crater. This soil was collected with 70185, an 8 cm vuggy basalt.

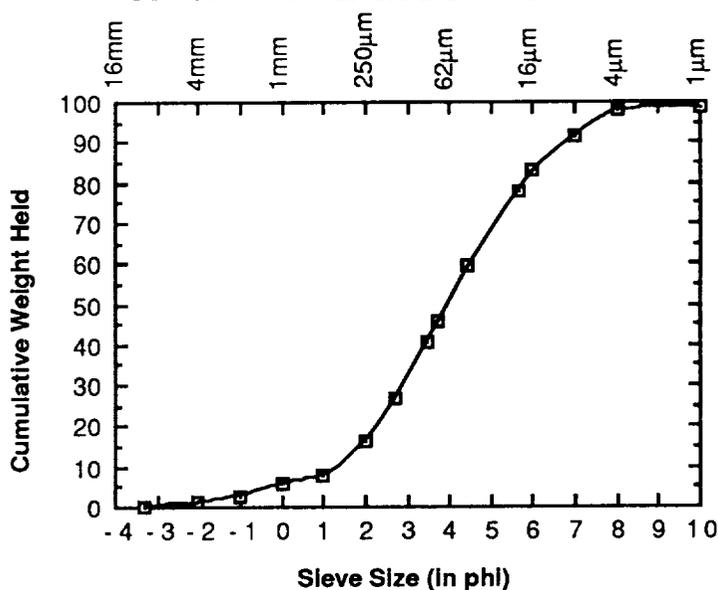
**MATURITY INDEX:**

$I_g/FeO = 47$  (submature)

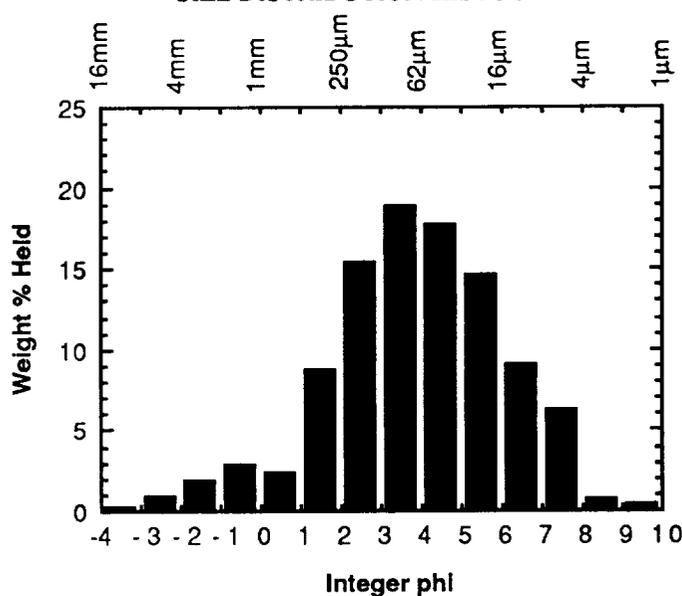
**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	1.00
2000.00	1.85
1000.00	2.75
500.00	2.30
250.00	8.58
150.00	10.55
90.00	13.67
75.00	4.94
45.00	13.90
20.00	18.23
15.60	4.95
7.80	9.02
3.90	6.23
1.00	1.03

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**

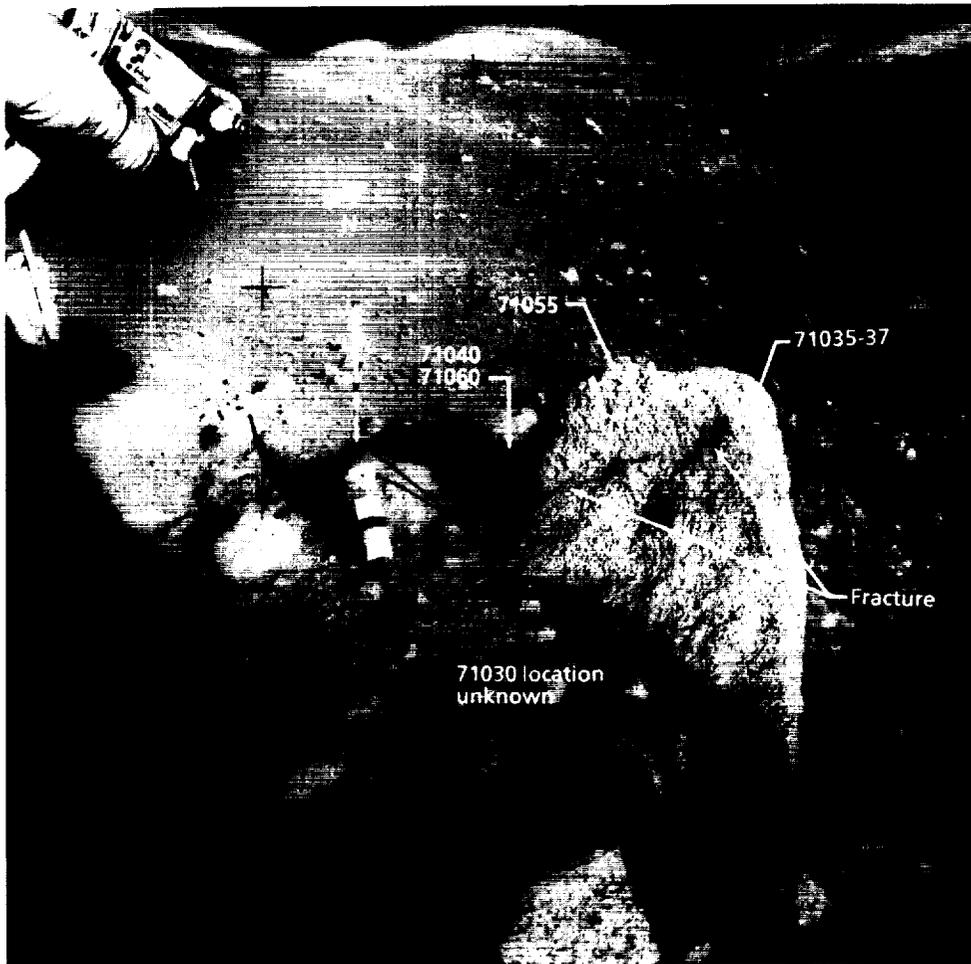


**GRAPHIC AND MOMENT MEASURES**

Mean:	4.01
Median:	3.97
Mode:	3.50
Sorting:	2.21
Skewness:	-0.03
Kurtosis:	1.11

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.23
16	1.95
25	2.61
50	3.97
75	5.45
84	6.12
95	7.46



71040 Sample Environment

AS17-136-20739

Pre-sampling.

**Soil: 71040**  
(subsample 71041,1)  
D.S. McKay PI

**LOCATION COMMENTS:**

71040 is a surface soil that was collected along with 6 chips in the shadow of "tombstone rock" at Station 1A. Soil 71060 was collected at the same site at a depth of 5-6 cm. Tombstone rock is on the inner side of the southwest rim of a 10 meter blocky crater. The sample area is broadly rolling and dominated by ejecta. Local craters up to 2 meters in size are common, and the fines are fairly compact.

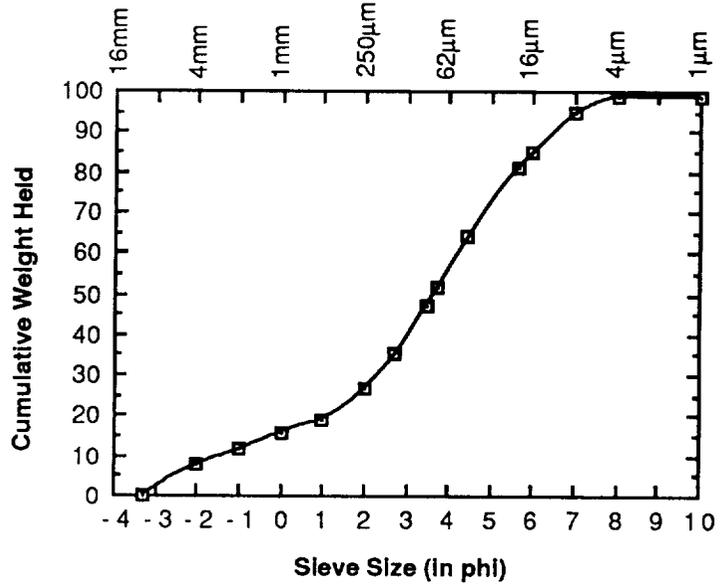
**MATURITY INDEX:**

$I_s/FeO = 29$  (immature)

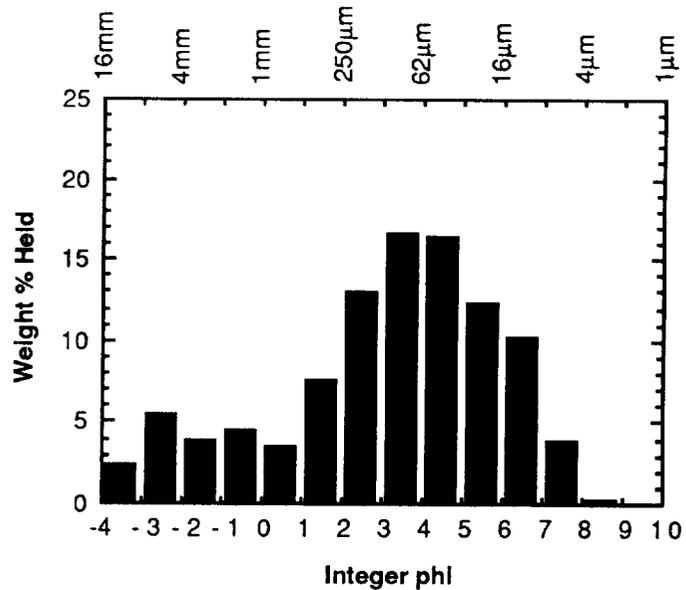
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	7.75
2000.00	3.73
1000.00	4.36
500.00	3.35
250.00	7.50
150.00	8.60
90.00	12.05
75.00	4.32
45.00	12.67
20.00	17.02
15.60	3.47
7.80	10.12
3.90	3.80
1.00	0.27

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**

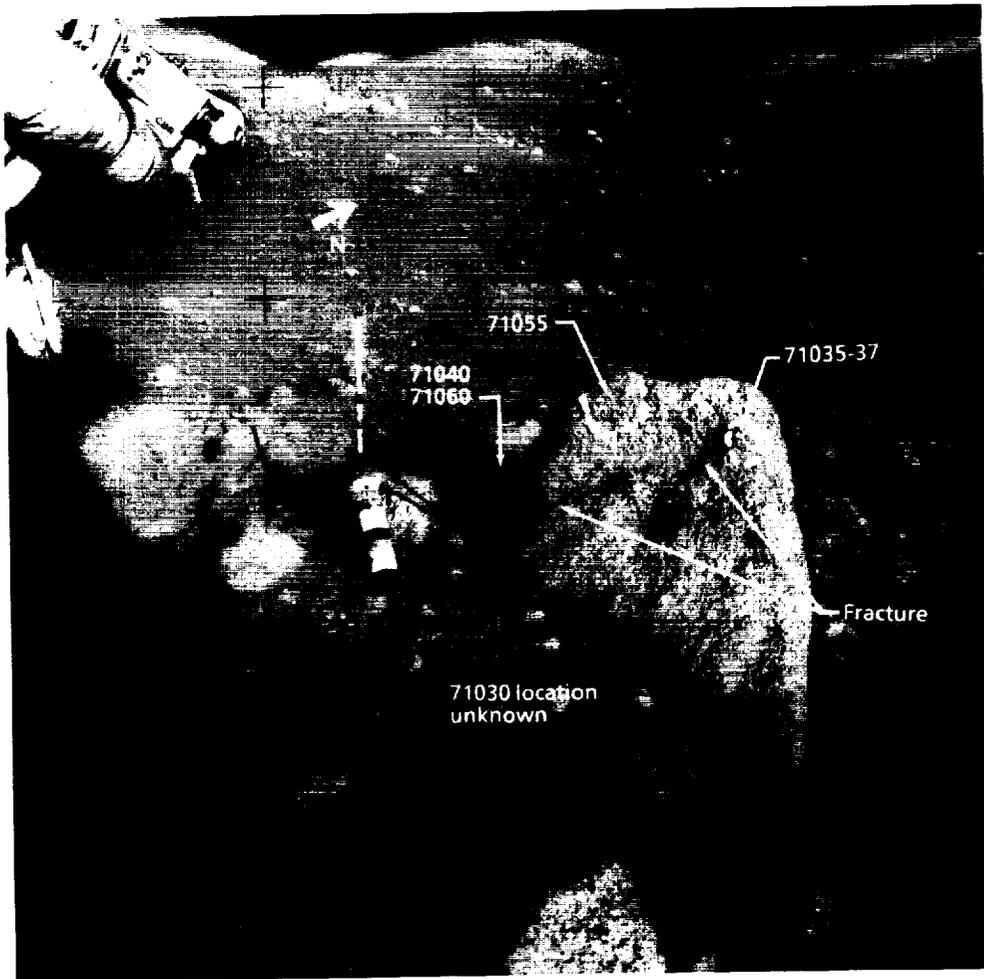


**GRAPHIC AND MOMENT MEASURES**

Mean:	3.20
Median:	3.64
Mode:	3.50
Sorting:	2.92
Skewness:	-0.26
Kurtosis:	1.17

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.57
16	0.04
25	1.81
50	3.64
75	5.16
84	5.92
95	7.02



71060 Sample Environment

AS17-136-20739

Pre-sampling.

**Soil: 71060**  
(subsample 71061,1)  
D.S. McKay PI

**LOCATION COMMENTS:**

71060 is a soil sample collected 5-6 cm below the surface in the shadow of "tombstone rock" at Station 1A. It was collected with 13 chips. Tombstone rock is on the inner side of the southwest rim of a 10 meter blocky crater. The sample area is broadly rolling and dominated by ejecta. Local craters up to 2 meters in size are common, and the fines are fairly compact.

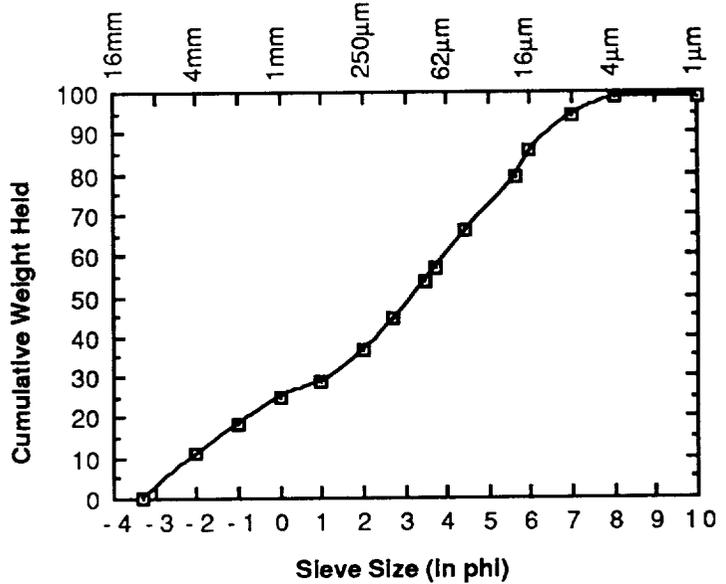
**MATURITY INDEX:**

$I_g/FeO = 14$  (immature)

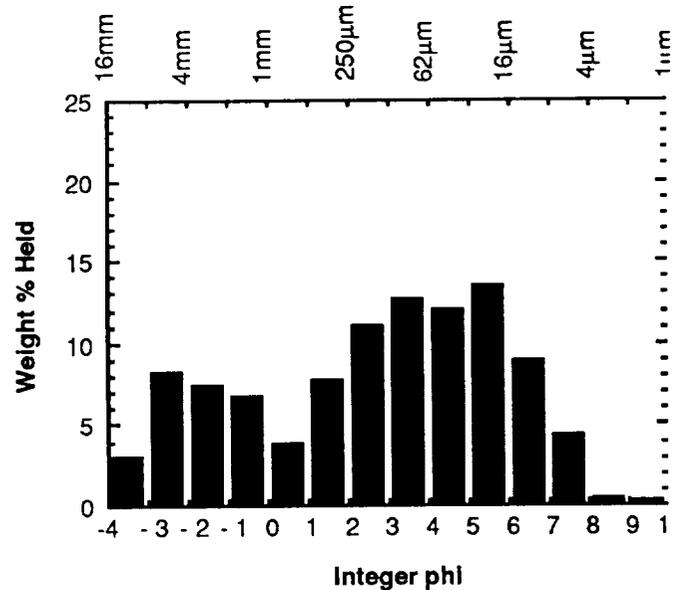
**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	11.08
2000.00	7.35
1000.00	6.68
500.00	3.75
250.00	7.72
150.00	7.66
90.00	9.43
75.00	3.27
45.00	9.15
20.00	13.30
15.60	6.09
7.80	8.87
3.90	4.19
1.00	0.47

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	2.58
Median:	3.19
Mode:	5.50
Sorting:	3.31
Skewness:	-0.23
Kurtosis:	0.77

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.75
16	-1.34
25	-0.02
50	3.19
75	5.27
84	5.91
95	7.13



71500 Sample Environment

AS17-134-20432

Post-sampling, 71500  
collected from bottom of  
shallow trench.

**Soil: 71500**  
 (subsample 71501,1)  
 D.S. McKay PI

**LOCATION COMMENTS:**

Soil 71500 and 6 rock fragments were collected at Station 1A 15 meters northeast of the rim of a blocky 10 meter crater. It was collected as the reference to rake sample 71520-71597. The sample area is flat and essentially free of large fragments. The fines are fairly compact, there are 3 .5 meter craters in the sample area. The soil is scooped from the edge of a subdued crater in an area mostly free of surface rocks and small craters.

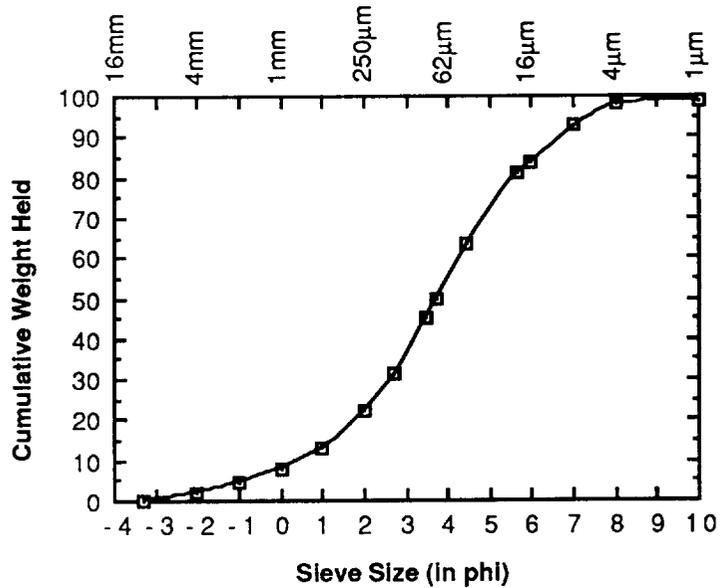
**MATURITY INDEX:**

$I_g/FeO = 35$  (submature)

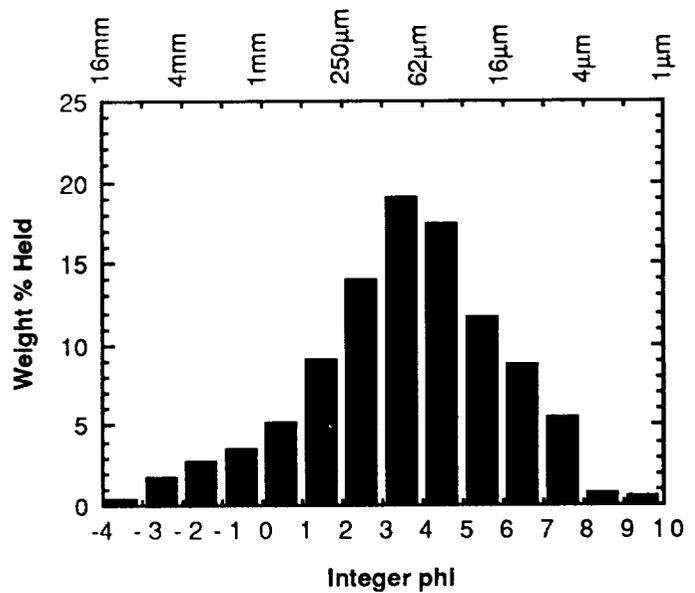
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	1.99
2000.00	2.66
1000.00	3.44
500.00	5.10
250.00	8.96
150.00	9.33
90.00	13.45
75.00	5.05
45.00	13.70
20.00	17.27
15.60	2.95
7.80	8.61
3.90	5.37
1.00	1.13

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**

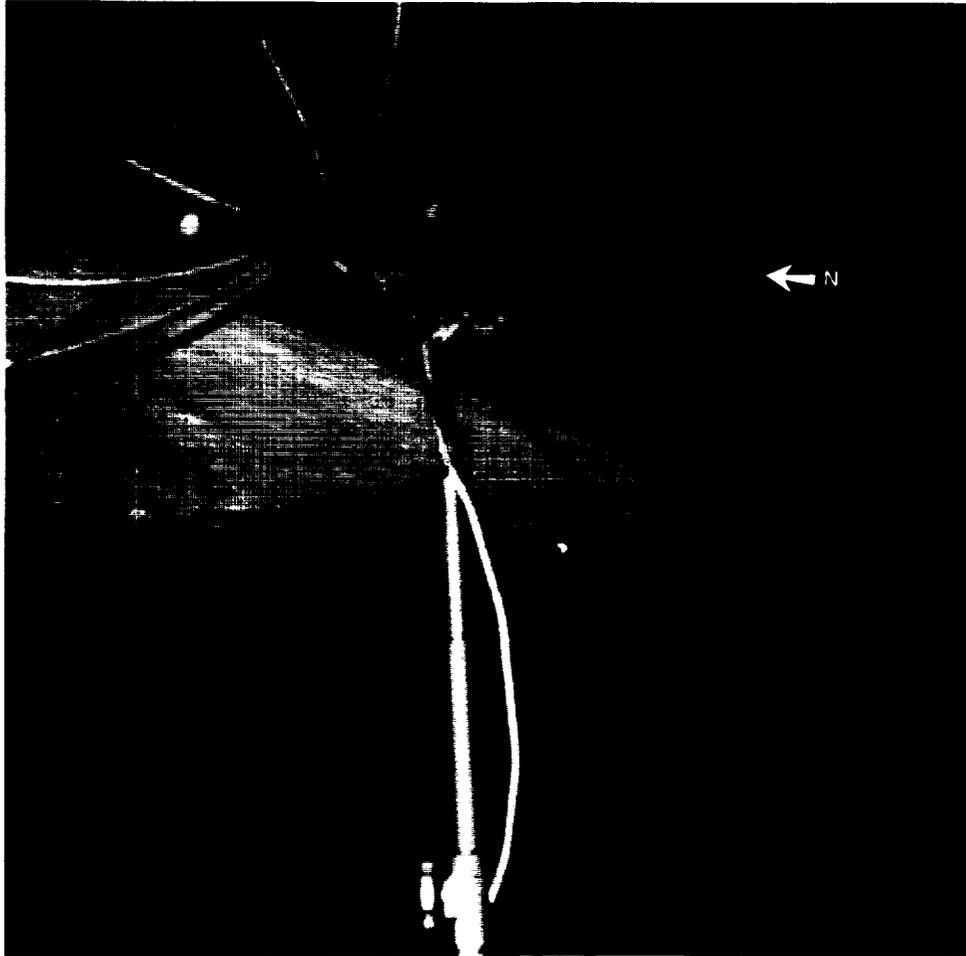


**GRAPHIC AND MOMENT MEASURES**

Mean:	3.71
Median:	3.74
Mode:	3.50
Sorting:	2.42
Skewness:	-0.07
Kurtosis:	1.16

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.88
16	1.37
25	2.25
50	3.74
75	5.17
84	6.02
95	7.40



72140 Sample Environment

AS17-135-20642

Pre-sampling, 72140  
probably from light area  
near rim of crater above  
and right of TV camera.

**Soil: 72140**  
 (subsample 72141,1)  
 D.S. McKay PI

**LOCATION COMMENTS:**

This soil was collected during the LRV traverse between Station 1 and 2 on the "prong" or very faint extension of the white mantle of a crater rim. The sample area is undulating, and fragments greater than 10 cm are rare. The ground surface is patterned in a "raindrop" texture. This sample is very cohesive.

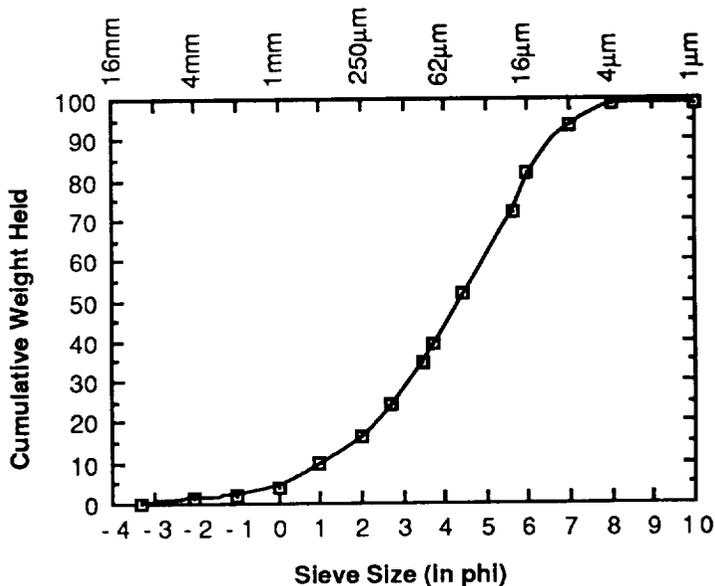
**MATURITY INDEX:**

$I_g/FeO = 81$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	1.15
2000.00	0.79
1000.00	2.24
500.00	5.34
250.00	6.70
150.00	7.68
90.00	10.90
75.00	4.13
45.00	12.76
20.00	20.45
15.60	9.39
7.80	11.97
3.90	4.92
1.00	0.58

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



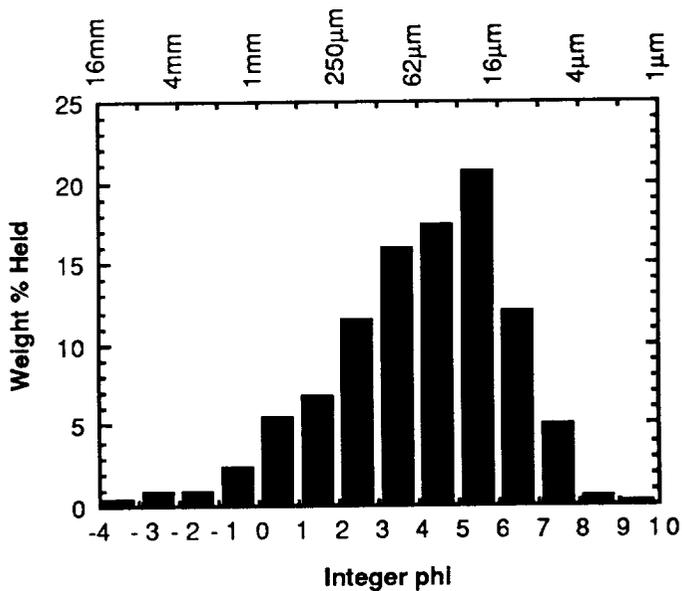
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.17
Median:	4.38
Mode:	5.50
Sorting:	2.11
Skewness:	-0.17
Kurtosis:	0.98

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.20
16	1.97
25	2.82
50	4.38
75	5.76
84	6.15
95	7.26

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 72140**  
(subsample 72141,15)  
D.S. McKay PI

**LOCATION COMMENTS:**

This soil was collected during the LRV traverse between Station 1 and 2 on the "prong" or very faint extension of the white mantle of a crater rim. The sample area is undulating, and fragments greater than 10 cm are rare. The ground surface is patterned in a "raindrop" texture. This sample is very cohesive.

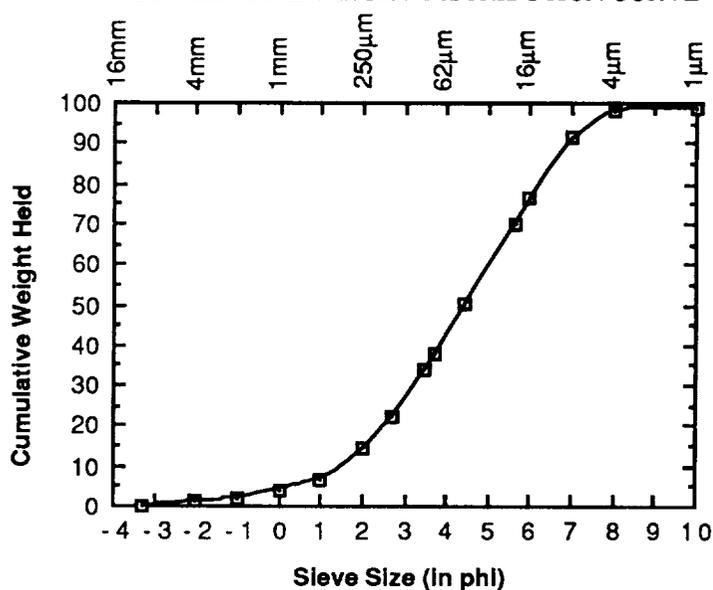
**MATURITY INDEX:**

$I_g/FeO = 81$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	1.15
2000.00	0.79
1000.00	2.24
500.00	2.65
250.00	7.36
150.00	8.30
90.00	11.33
75.00	4.16
45.00	12.65
20.00	19.39
15.60	6.30
7.80	14.91
3.90	6.89
1.00	0.88

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



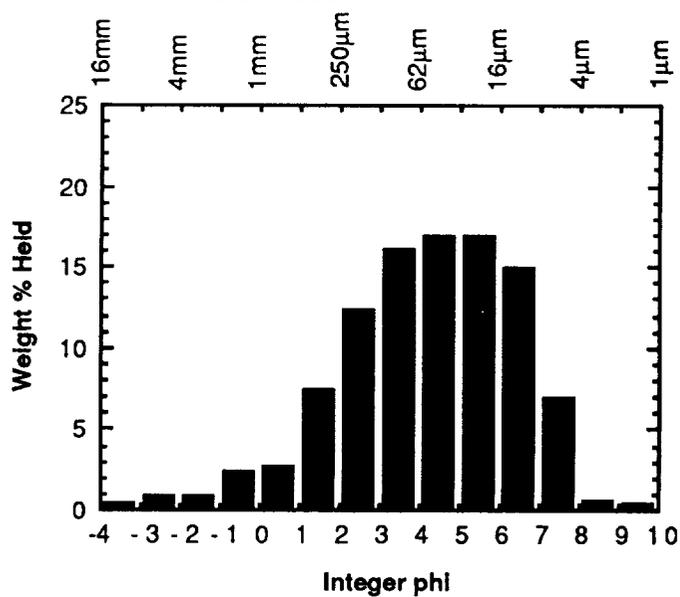
**GRAPHIC AND MOMENT MEASURES**

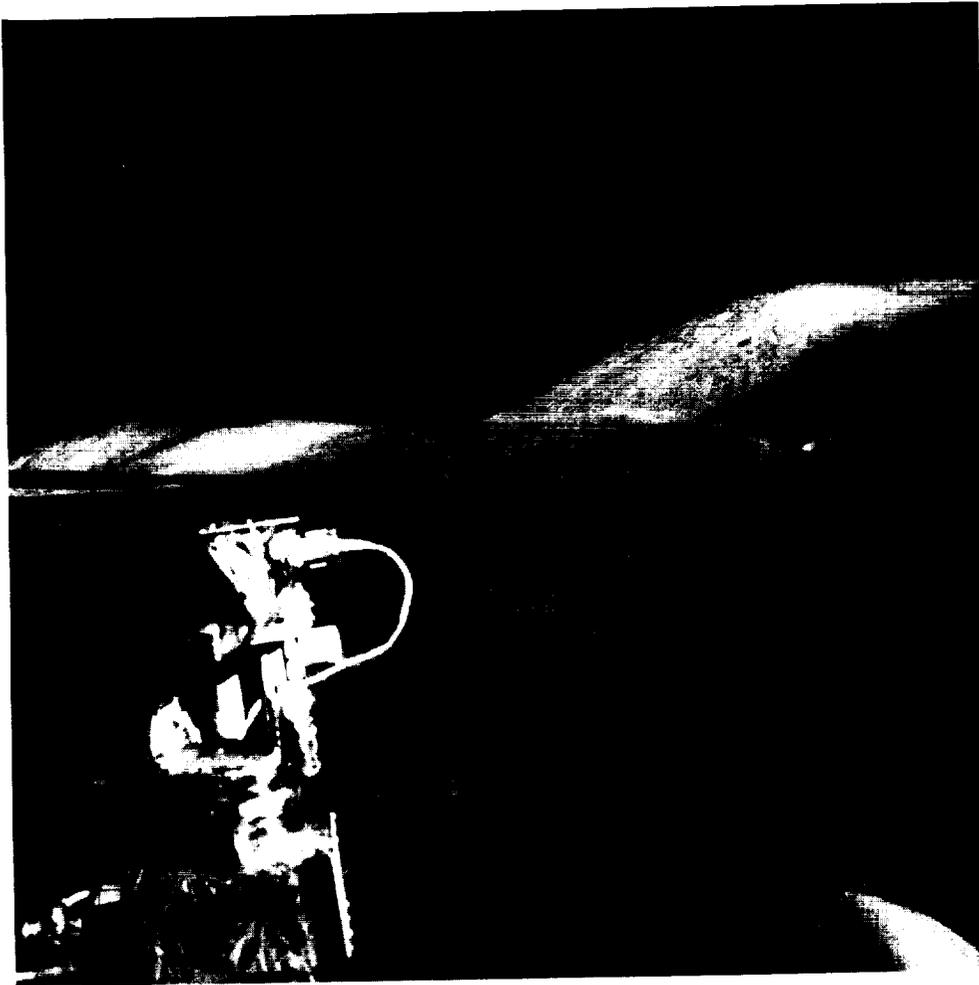
Mean:	4.36
Median:	4.44
Mode:	5.50
Sorting:	2.15
Skewness:	-0.10
Kurtosis:	0.97

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.33
16	2.19
25	2.91
50	4.44
75	5.93
84	6.47
95	7.46

**SIZE DISTRIBUTION HISTOGRAM**





72150 Sample Environment

AS17-135-20649

During sampling, sample taken on right side of LRV while stopped here. Scarp cutting North Massif in background.

**Soil: 72150**  
 (subsample 72151,2)  
 D.S. McKay PI

**LOCATION COMMENTS:**

This sample is document bag residue left in the bag which contained 72155, a 240 gm basalt. The basalt and the residue were collected during an LRV traverse on Tortilla flat between SEP and Station 2. The Sample area is flat with sparse fragments. The sampling and handling procedures make this data very suspect.

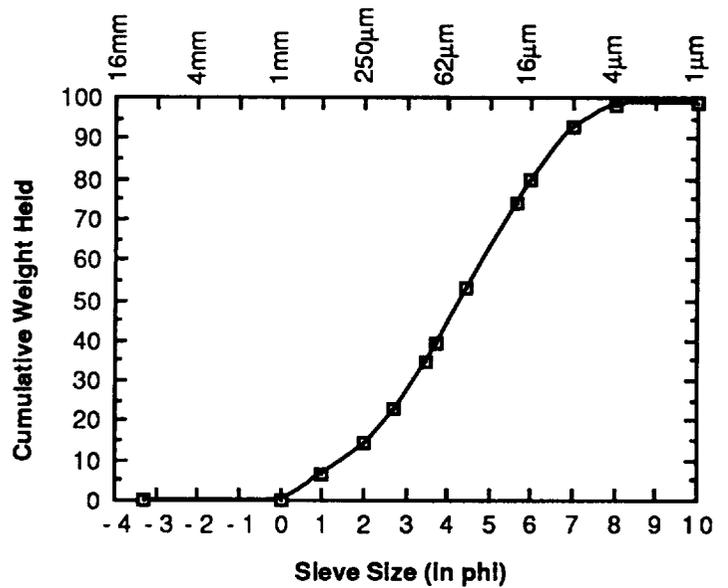
**MATURITY INDEX:**

$I_g/FeO = 82$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	6.72
250.00	7.38
150.00	8.84
90.00	11.70
75.00	4.65
45.00	13.78
20.00	20.81
15.60	5.69
7.80	13.14
3.90	5.49
1.00	0.79

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



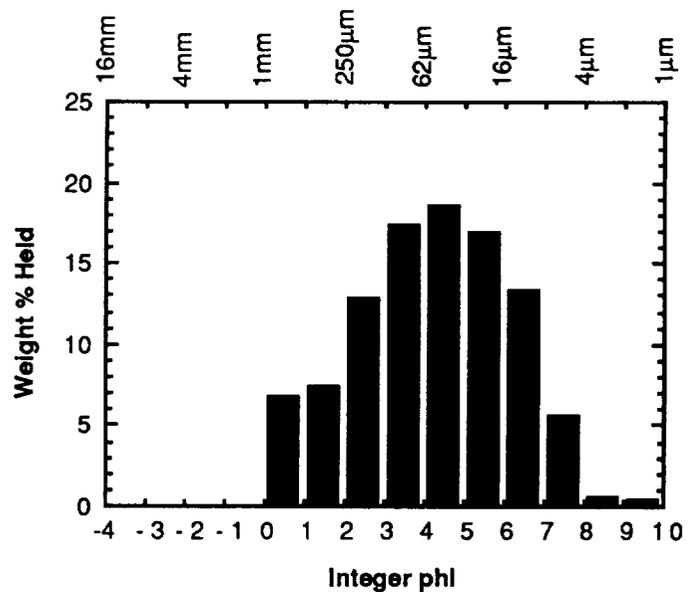
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.26
Median:	4.31
Mode:	4.50
Sorting:	2.03
Skewness:	-0.05
Kurtosis:	0.95

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.75
16	2.19
25	2.88
50	4.31
75	5.71
84	6.30
95	7.35

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 72240**  
(subsample 72241,7)  
D.S. McKay PI

**LOCATION COMMENTS:**

This soil was collected at Station 2, near the base of South Massif. The upper 4 cm of soil was collected from under a .7 meter breccia boulder which was rolled over by the crew. 72440 was from the upper 4 cm of the soil, and 72460 was a skim sample. The area was too disturbed after rolling the boulder over to compare well with the undisturbed fines, but generally it appears similar. The sample area is a strewn boulder field with loose fines.

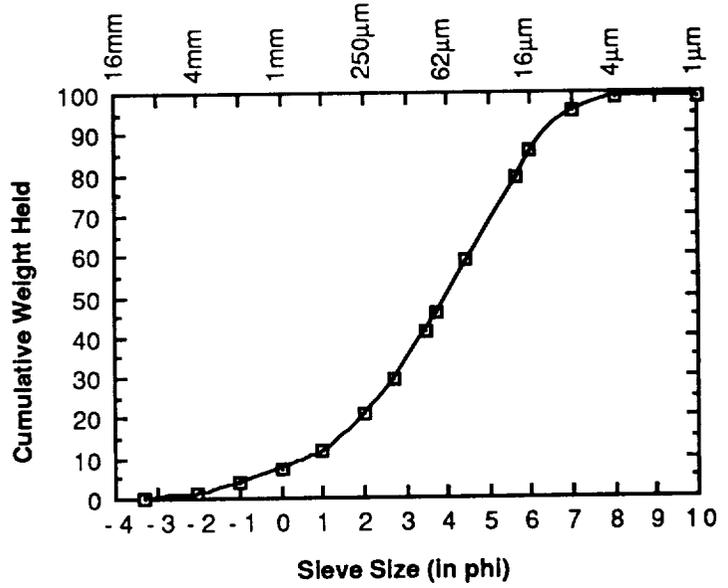
**MATURITY INDEX:**

$I_s/FeO = 68$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	1.00
2000.00	2.73
1000.00	3.63
500.00	4.19
250.00	9.17
150.00	8.96
90.00	11.81
75.00	4.30
45.00	12.95
20.00	20.14
15.60	6.91
7.80	9.65
3.90	3.22
1.00	0.35

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



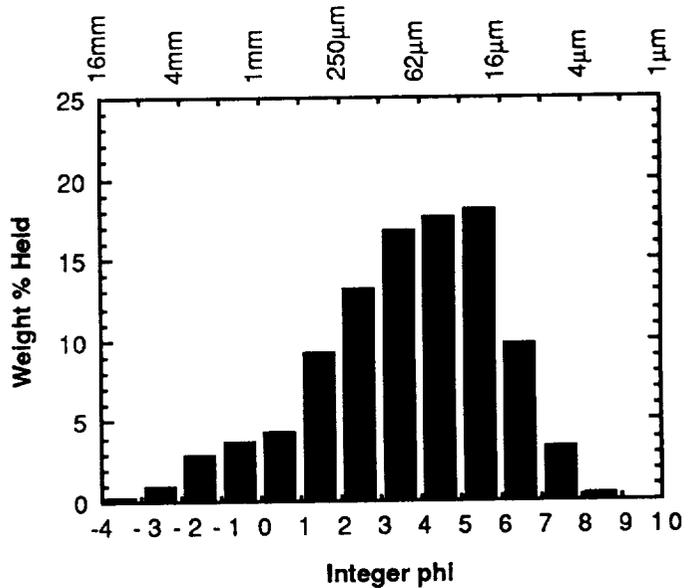
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.81
Median:	3.98
Mode:	5.50
Sorting:	2.23
Skewness:	-0.17
Kurtosis:	1.01

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.63
16	1.54
25	2.38
50	3.98
75	5.42
84	5.91
95	6.90

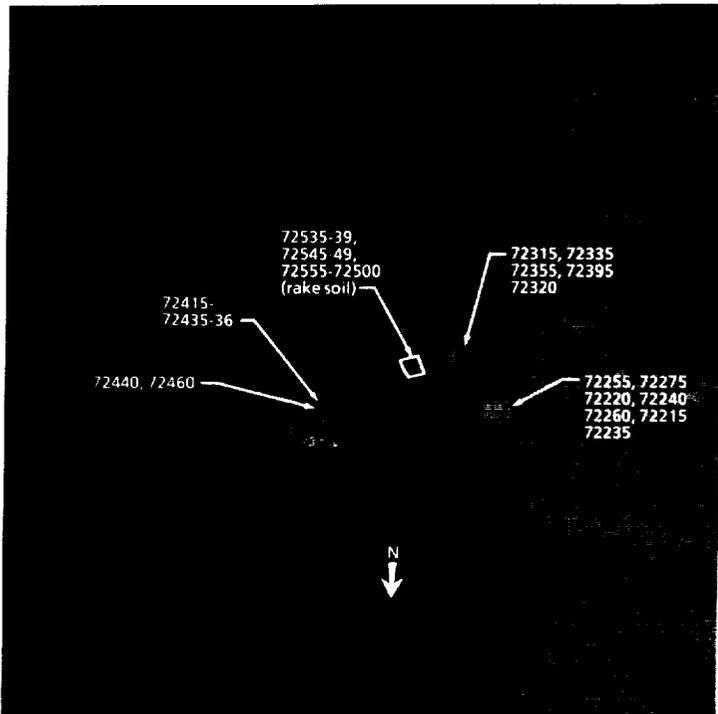
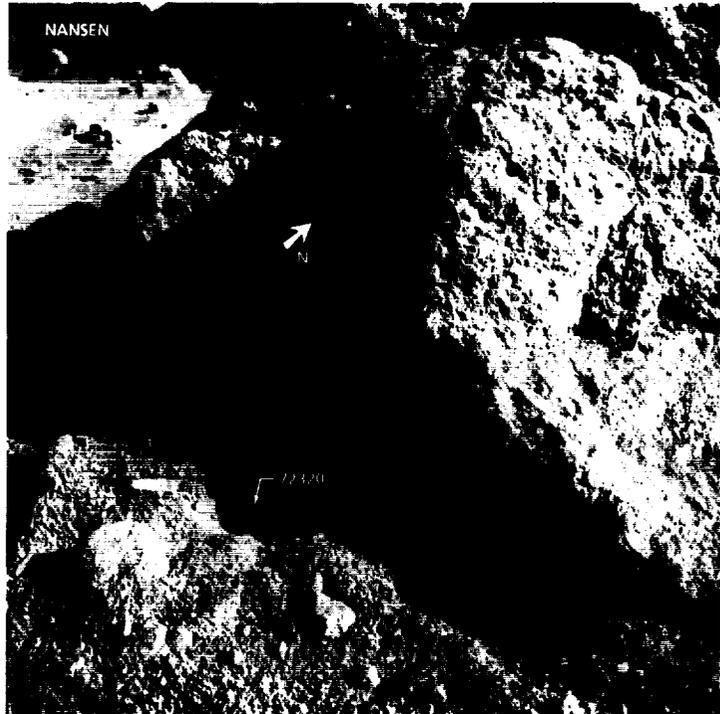
**SIZE DISTRIBUTION HISTOGRAM**



72320 Sample Environment

AS17-137-20925

Post-sampling, note the cohesive nature of the scooped surfaces.



72320 Sample Environment

AS17-138-21072

Post-sampling, distance from the LRV to farthest rock is about 50 m.

**Soil: 72320**  
 (subsample 72321,7)  
 D.S. McKay PI

**LOCATION COMMENTS:**

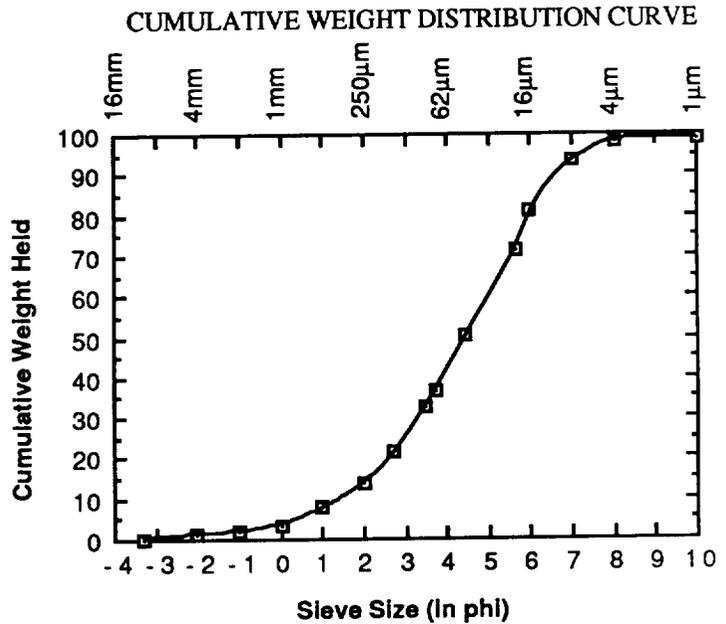
72320 was collected at Station 2, near the base of the South Massif. This "shadowed soil" collected about 20 cm under the east - west overhang of a 2 meter diameter boulder. The sample area is a strewn boulder field with boulders up to 2 meters across common. Craters up to 10 cm are abundant in the immediate sample area. The soil probably does not have as complex an exposure history as rake sample 72500 because of the protection from the rock overhang.

**MATURITY INDEX:**

$I_s/FeO = 73$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	1.19
2000.00	0.61
1000.00	1.70
500.00	4.13
250.00	6.23
150.00	7.52
90.00	11.24
75.00	4.24
45.00	13.43
20.00	21.27
15.60	9.44
7.80	12.38
3.90	4.84
1.00	0.77

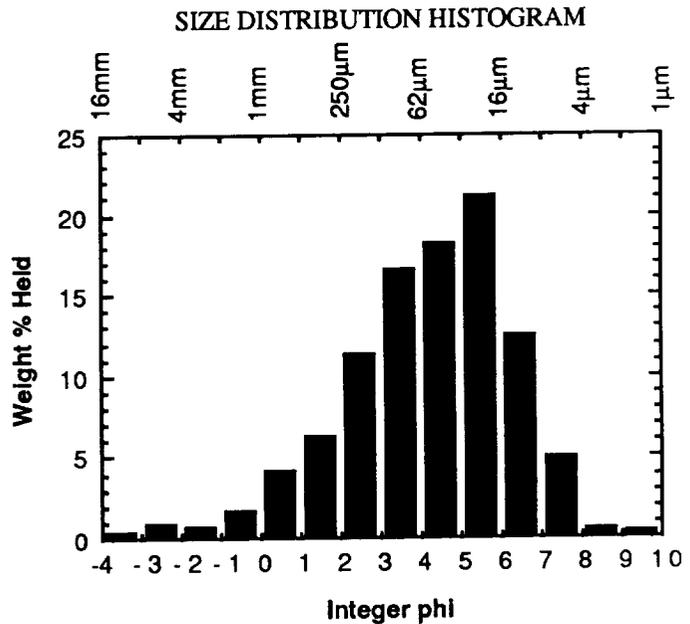


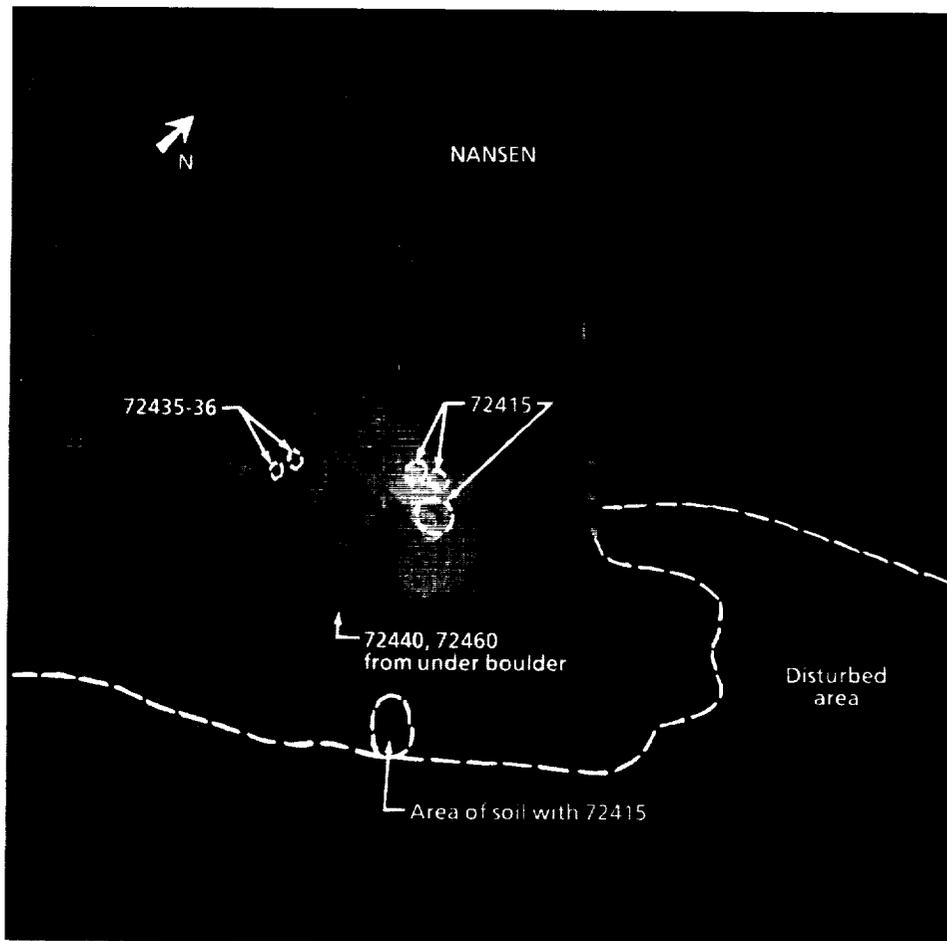
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.29
Median:	4.46
Mode:	5.50
Sorting:	2.02
Skewness:	-0.15
Kurtosis:	1.01

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.43
16	2.25
25	2.99
50	4.46
75	5.78
84	6.18
95	7.28





72440 Sample Environment

AS17-138-21049

Pre-sampling.

**Soil: 72440**  
(subsample 72441,7)  
D.S. McKay PI

**LOCATION COMMENTS:**

This soil was collected at Station 2, near the base of South Massif. The upper 4 cm of soil was collected from under a .7 meter breccia boulder which was rolled over by the crew. 72440 was from the upper 4 cm of the soil, and 72460 was a skim sample. The area was too disturbed after rolling the boulder over to compare well with the undisturbed fines, but generally it appears similar. The sample area is a strewn boulder field with loose fines.

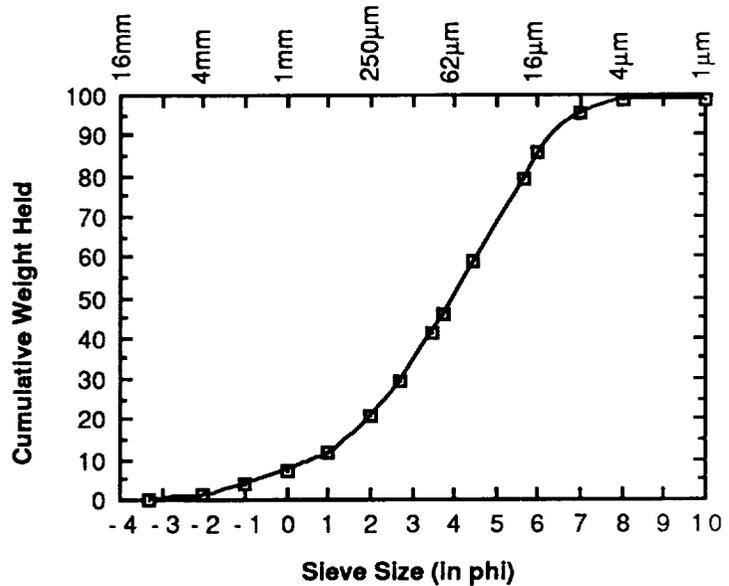
**MATURITY INDEX:**

$I_p/FeO = 68$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	1.00
2000.00	2.73
1000.00	3.63
500.00	4.19
250.00	9.17
150.00	8.96
90.00	11.81
75.00	4.30
45.00	12.95
20.00	20.14
15.60	6.91
7.80	9.65
3.90	3.22
1.00	0.35

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



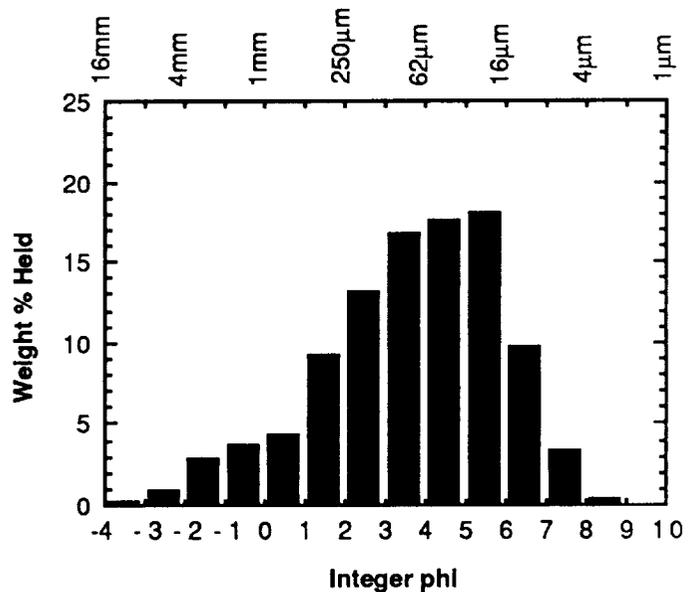
**GRAPHIC AND MOMENT MEASURES**

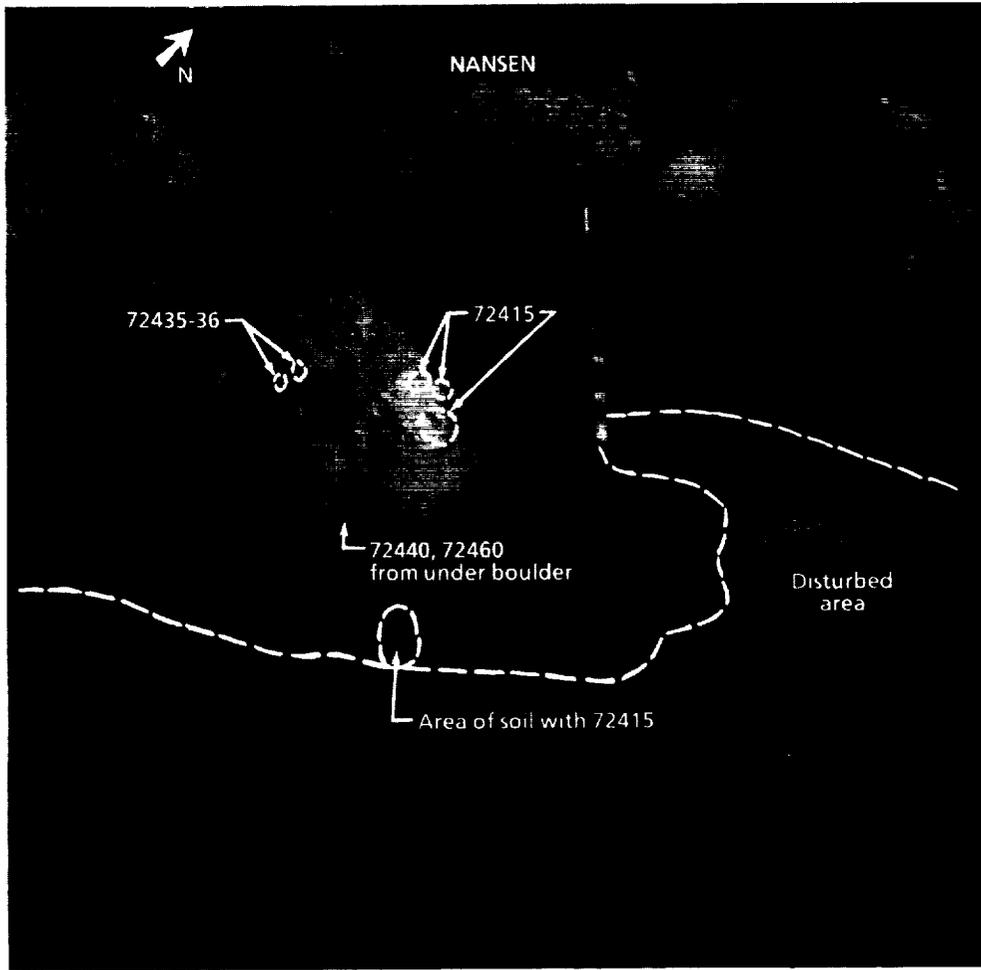
Mean:	3.81
Median:	3.98
Mode:	5.50
Sorting:	2.23
Skewness:	-0.17
Kurtosis:	1.01

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.63
16	1.54
25	2.38
50	3.98
75	5.42
84	5.91
95	6.90

**SIZE DISTRIBUTION HISTOGRAM**





72460 Sample Environment

AS17-138-21049

Pre-sampling.

**Soil: 72460**  
(subsample 72461,5)  
D.S. McKay PI

**LOCATION COMMENTS:**

72460 was collected at Station 2, near the base of South Massif. It was a skim sample which was collected from under a .7 meter breccia boulder which was rolled over by the crew. 72440 was from the upper 4 cm of the soil, and 72460 was a skim sample. The area was too disturbed after rolling the boulder over to compare well with the undisturbed fines, but generally it appears similar. The sample area is a strewn boulder field with loose fines.

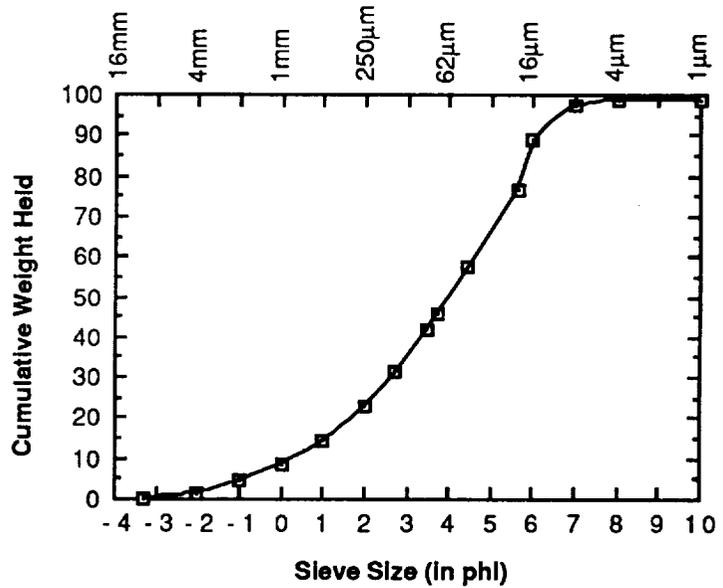
**MATURITY INDEX:**

$I_s/FeO = 71$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	1.40
2000.00	3.10
1000.00	4.09
500.00	5.78
250.00	8.59
150.00	8.26
90.00	10.72
75.00	3.95
45.00	11.66
20.00	19.13
15.60	12.08
7.80	8.49
3.90	1.61
1.00	0.14

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



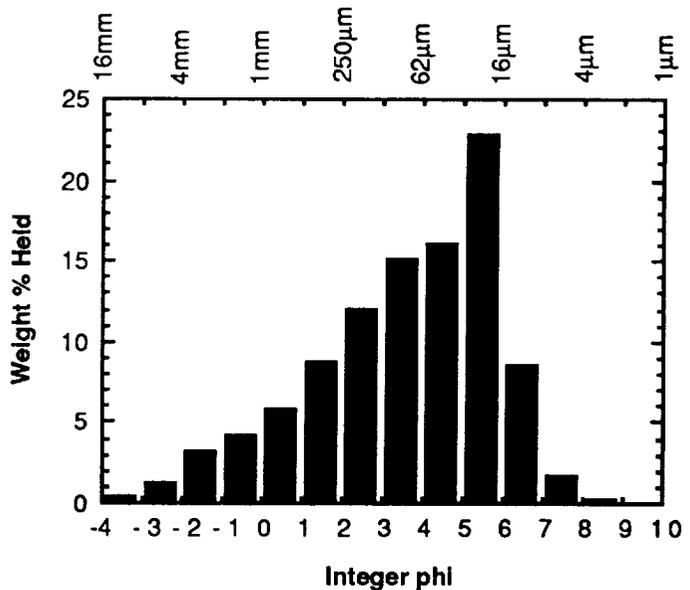
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.69
Median:	4.00
Mode:	5.50
Sorting:	2.28
Skewness:	-0.26
Kurtosis:	0.91

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.86
16	1.23
25	2.20
50	4.00
75	5.55
84	5.85
95	6.56

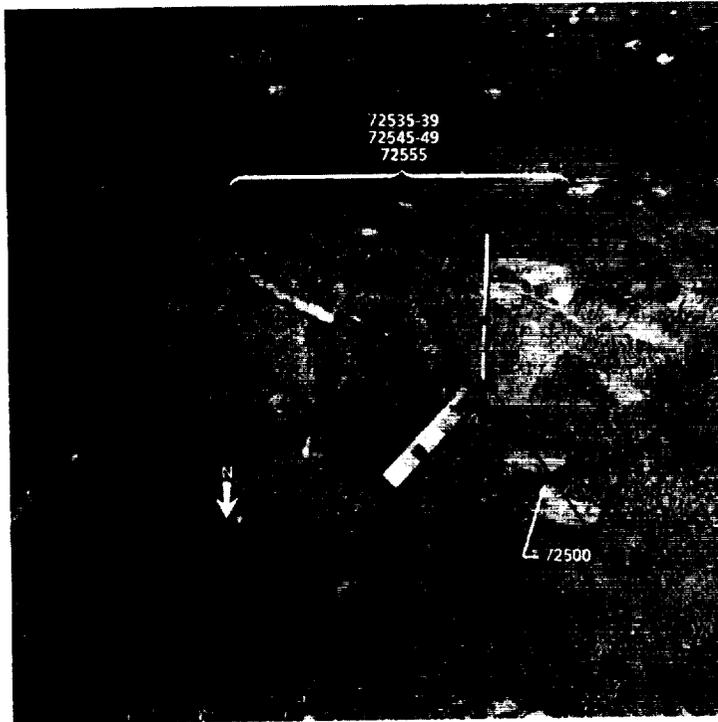
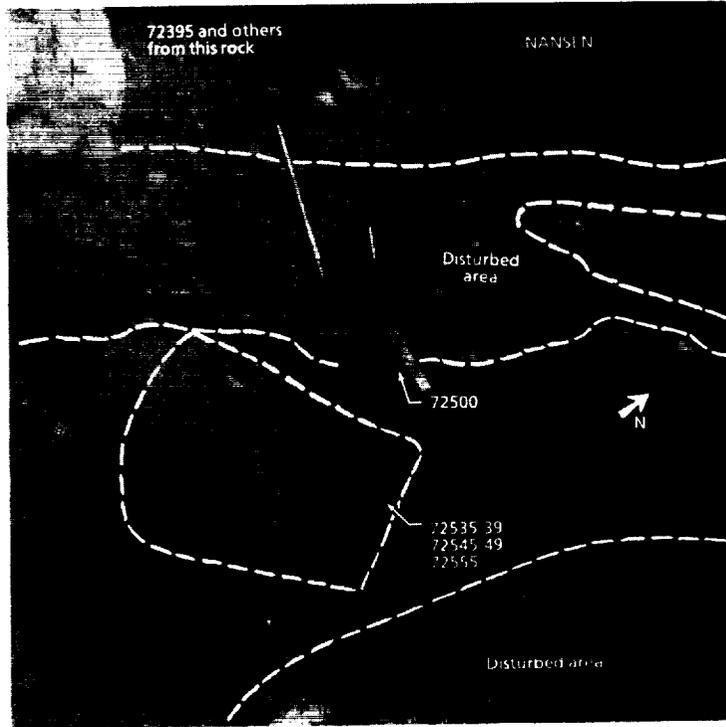
**SIZE DISTRIBUTION HISTOGRAM**



72500 Sample Environment

AS17-138-21045

Pre-sampling.



72500 Sample Environment

AS17-137-20962

Post sampling, notice rake marks and strewn boulders in the background.

**Soil: 72500**  
(subsample 72501,1)  
D.S. McKay PI

**LOCATION COMMENTS:**

Soil 72500 and rake sample 72530-72559 were collected at Station 2 near the base of South Massif a few meters from the rim of Nansen crater. Boulders up to 2 meters are common in the general area, but fragments larger than 25 cm are sparse in the raked area. The soil was sampled to a depth of 4 cm.

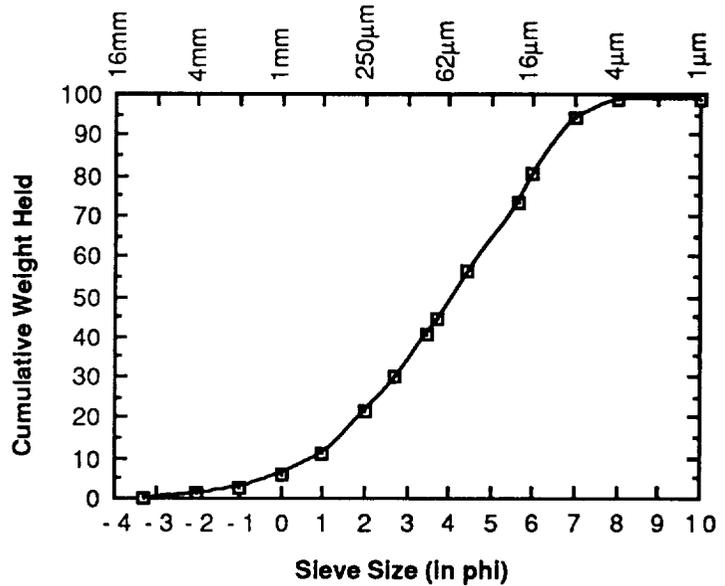
**MATURITY INDEX:**

$I_s/FeO = 81$  (mature)

**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	1.08
2000.00	1.75
1000.00	3.27
500.00	5.34
250.00	10.05
150.00	8.34
90.00	10.84
75.00	3.79
45.00	11.73
20.00	17.12
15.60	7.32
7.80	13.34
3.90	4.44
1.00	0.58

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



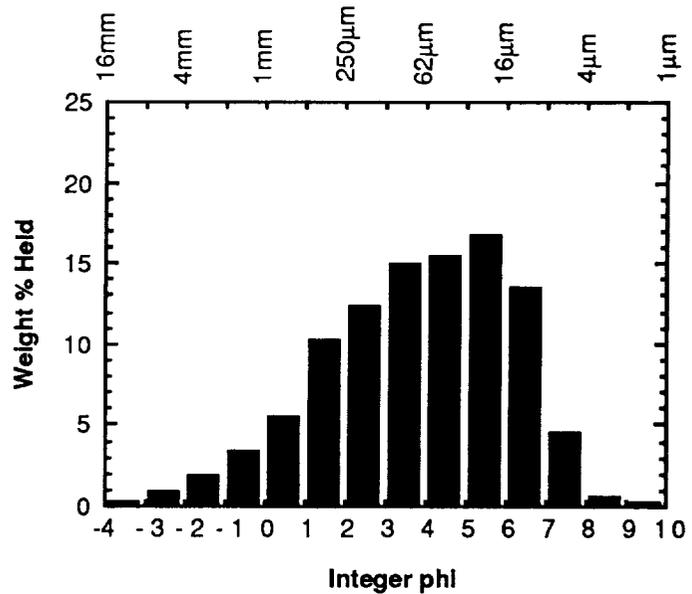
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.92
Median:	4.09
Mode:	5.50
Sorting:	2.31
Skewness:	-0.14
Kurtosis:	0.90

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-0.29
16	1.48
25	2.32
50	4.09
75	5.73
84	6.20
95	7.19

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 72500**  
(subsample 72501,15)  
D.S. McKay PI

**LOCATION COMMENTS:**

Soil 72500 and rake sample 72530-72559 were collected at Station 2 near the base of South Massif a few meters from the rim of Nansen crater. Boulders up to 2 meters are common in the general area, but fragments larger than 25 cm are sparse in the raked area. The soil was sampled to a depth of 4 cm.

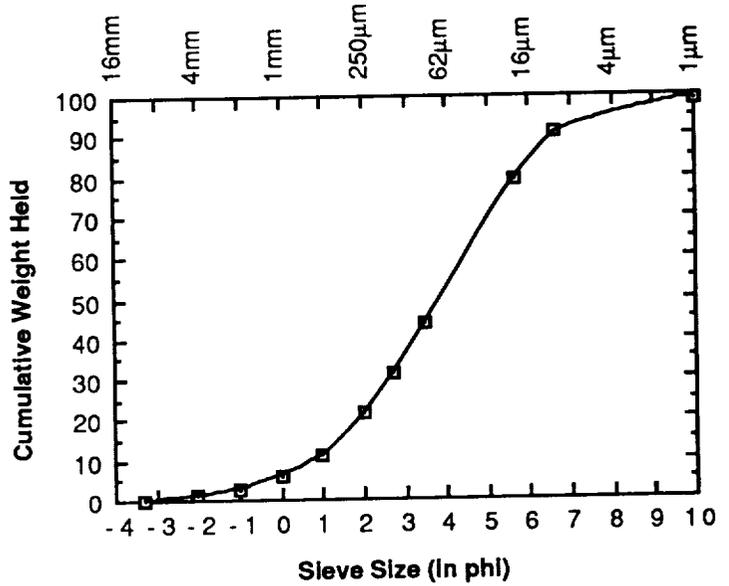
**MATURITY INDEX:**

$I_p/FeO = 81$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	1.08
2000.00	1.75
1000.00	3.27
500.00	5.22
250.00	10.29
150.00	10.01
90.00	12.21
20.00	35.44
10.00	11.36
1.00	8.36

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



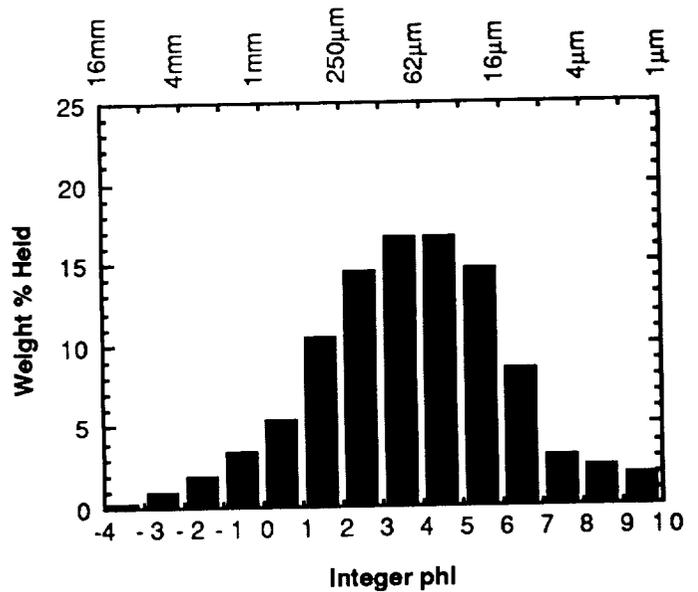
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.80
Median:	3.85
Mode:	3.50
Sorting:	2.40
Skewness:	-0.01
Kurtosis:	1.11

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.29
16	1.51
25	2.27
50	3.85
75	5.37
84	6.03
95	8.08

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 72500**  
(subsample 72501,26)  
E.A. King PI

**LOCATION COMMENTS:**

Soil 72500 and rake sample 72530-72559 were collected at Station 2 near the base of South Massif a few meters from the rim of Nansen crater. Boulders up to 2 meters are common in the general area, but fragments larger than 25 cm are sparse in the raked area. The soil was sampled to a depth of 4 cm.

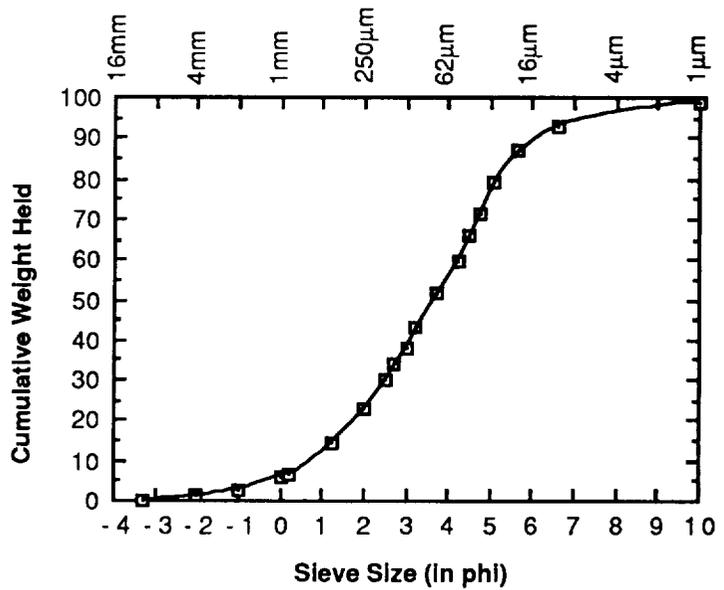
**MATURITY INDEX:**

$I_p/FeO = 81$  (mature)

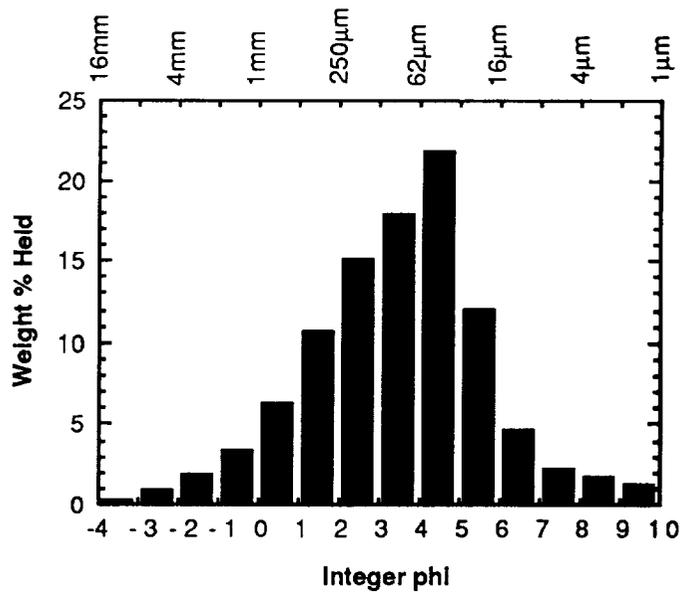
**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	1.08
2000.00	1.75
1000.00	3.27
841.00	0.71
420.00	7.83
250.00	8.27
177.00	7.15
150.00	3.69
125.00	4.24
105.00	5.34
74.00	8.63
53.00	7.59
44.00	6.64
37.00	5.11
30.00	7.59
20.00	7.71
10.00	6.52
1.00	5.87

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.48
Median:	3.64
Mode:	4.50
Sorting:	2.18
Skewness:	-0.07
Kurtosis:	1.16

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-0.35
16	1.39
25	2.15
50	3.64
75	4.90
84	5.40
95	7.42

**Soil: 72500**  
(subsample 72501,29)  
E.A. King PI

**LOCATION COMMENTS:**

Soil 72500 and rake sample 72530-72559 were collected at Station 2 near the base of South Massif a few meters from the rim of Nansen crater. Boulders up to 2 meters are common in the general area, but fragments larger than 25 cm are sparse in the raked area. The soil was sampled to a depth of 4 cm.

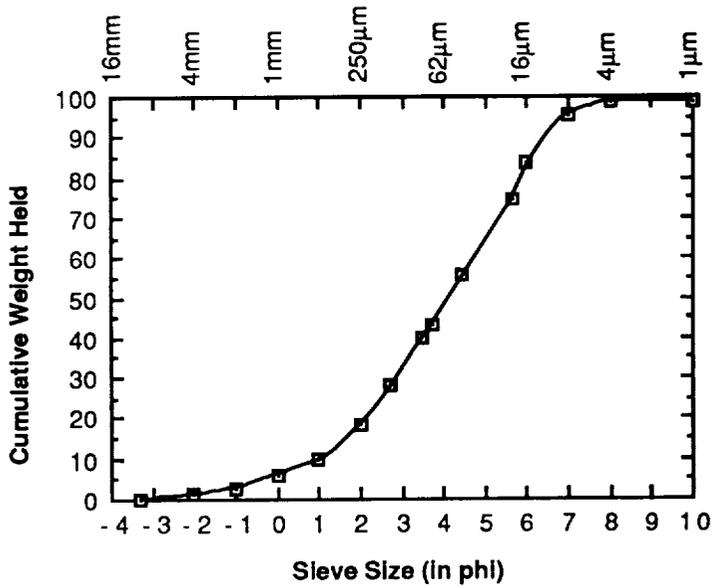
**MATURITY INDEX:**

$I_g/FeO = 81$  (mature)

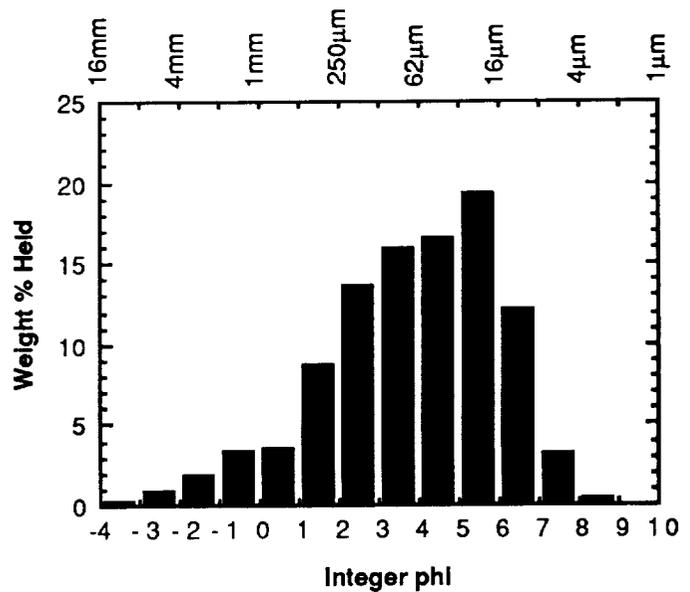
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	1.08
2000.00	1.75
1000.00	3.27
500.00	3.48
250.00	8.70
150.00	9.51
90.00	11.76
75.00	3.78
45.00	12.26
20.00	19.02
15.60	8.92
7.80	12.07
3.90	3.09
1.00	0.31

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.98
Median:	4.14
Mode:	5.50
Sorting:	2.15
Skewness:	-0.18
Kurtosis:	0.94

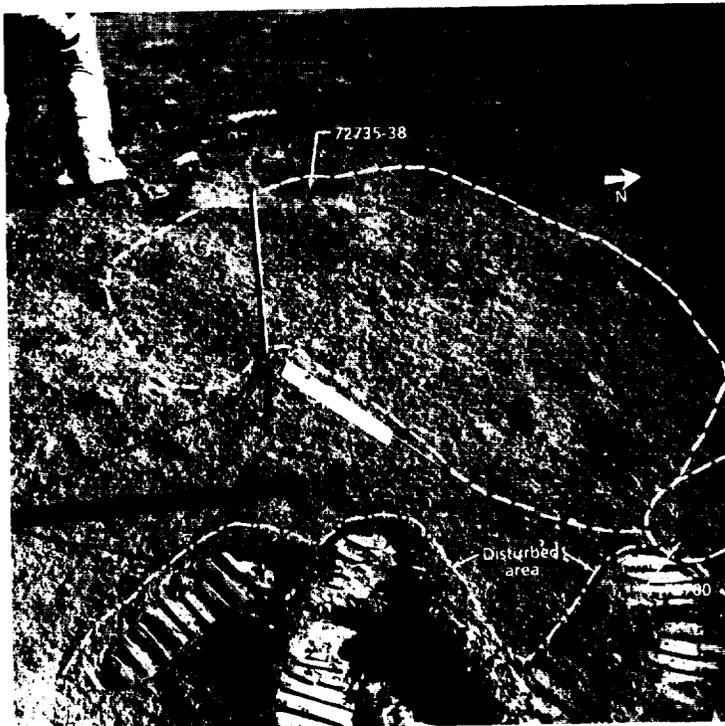
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.33
16	1.78
25	2.54
50	4.14
75	5.66
84	6.03
95	6.87

72700 Sample Environment

AS17-138-21074

Post-sampling, note light  
color material under  
surface.



72700 Sample Environment

AS17-137-20974

Pre-sampling, rake location  
determined from TV.

Soil: 72700  
(subsample 72701,29)  
D.S. McKay PI

LOCATION COMMENTS:

Soil 72700 and rake samples 72735-38 were collected at Station 2 in a light mantle unit near the base of South Massif slightly upslope from Nansen crater. The area has an undulating slope towards the southeast, fragments up to 3 cm are sparsely distributed in the rake area, and craters up to 5 meters are common in the general area. The sample was collected to a depth of 5 cm.

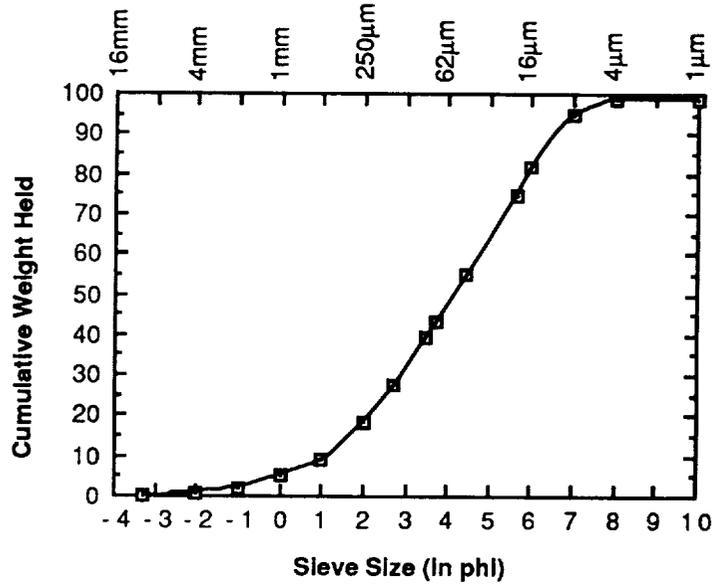
MATURITY INDEX:

$I_g/FeO = 61$  (mature)

TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.80
2000.00	1.36
1000.00	2.98
500.00	3.85
250.00	9.31
150.00	8.98
90.00	11.95
75.00	3.96
45.00	11.91
20.00	19.59
15.60	7.02
7.80	13.22
3.90	3.70
1.00	0.37

CUMULATIVE WEIGHT DISTRIBUTION CURVE



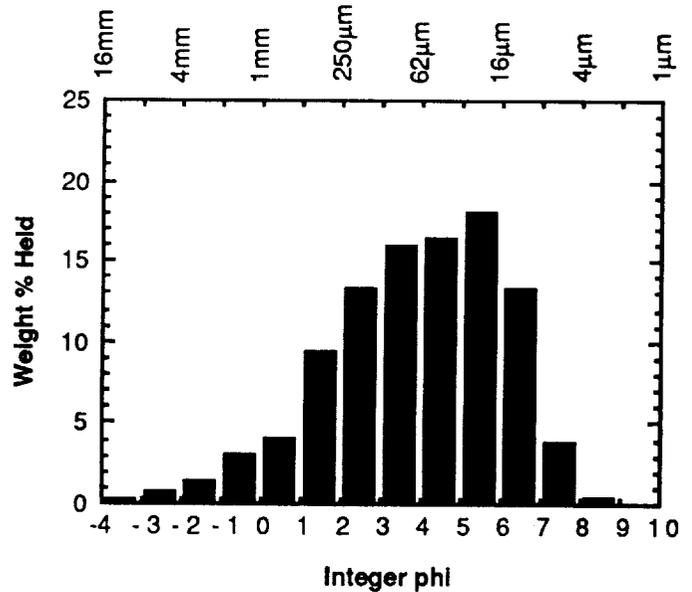
GRAPHIC AND MOMENT MEASURES

Mean:	4.03
Median:	4.16
Mode:	5.50
Sorting:	2.16
Skewness:	-0.14
Kurtosis:	0.94

MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-0.04
16	1.78
25	2.57
50	4.16
75	5.66
84	6.14
95	7.02

SIZE DISTRIBUTION HISTOGRAM





73120 Sample Environment

AS17-138-21103

Post-sampling.

**Soil: 73120**  
(subsample 73121,10)  
D.S. McKay PI

**LOCATION COMMENTS:**

Surface sample 73120 was collected near trench sample 73140 at Station 2A, about 750 meters north-northeast of Station 2 at the base of South Massif on the light mantle deposits. The site is generally level, with fragments >5cm sparse and craters >10 cm sparse.

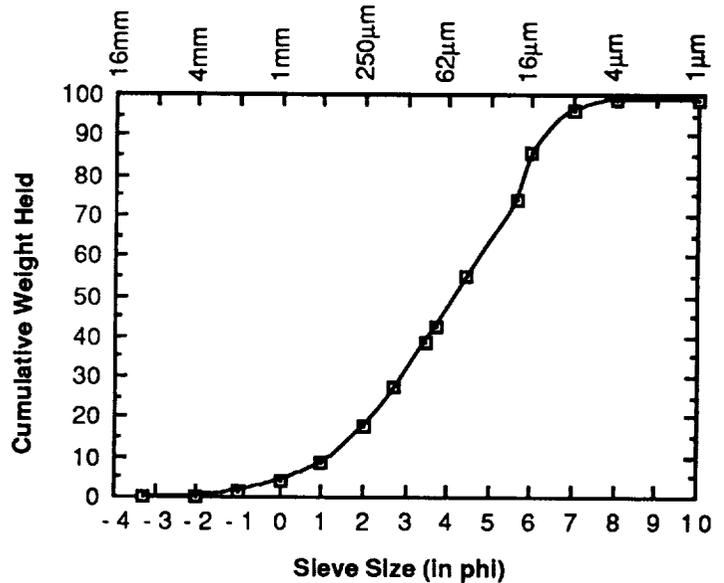
**MATURITY INDEX:**

$I_s/FeO = 78$  (mature)

**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	0.27
2000.00	1.07
1000.00	2.77
500.00	4.50
250.00	9.14
150.00	9.46
90.00	11.59
75.00	3.90
45.00	12.39
20.00	18.57
15.60	12.21
7.80	10.49
3.90	2.40
1.00	0.26

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



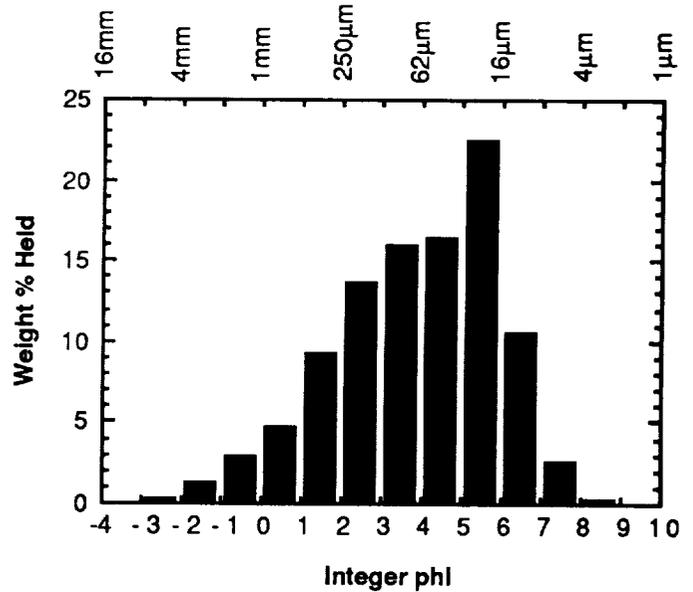
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.97
Median:	4.17
Mode:	5.50
Sorting:	2.00
Skewness:	-0.18
Kurtosis:	0.85

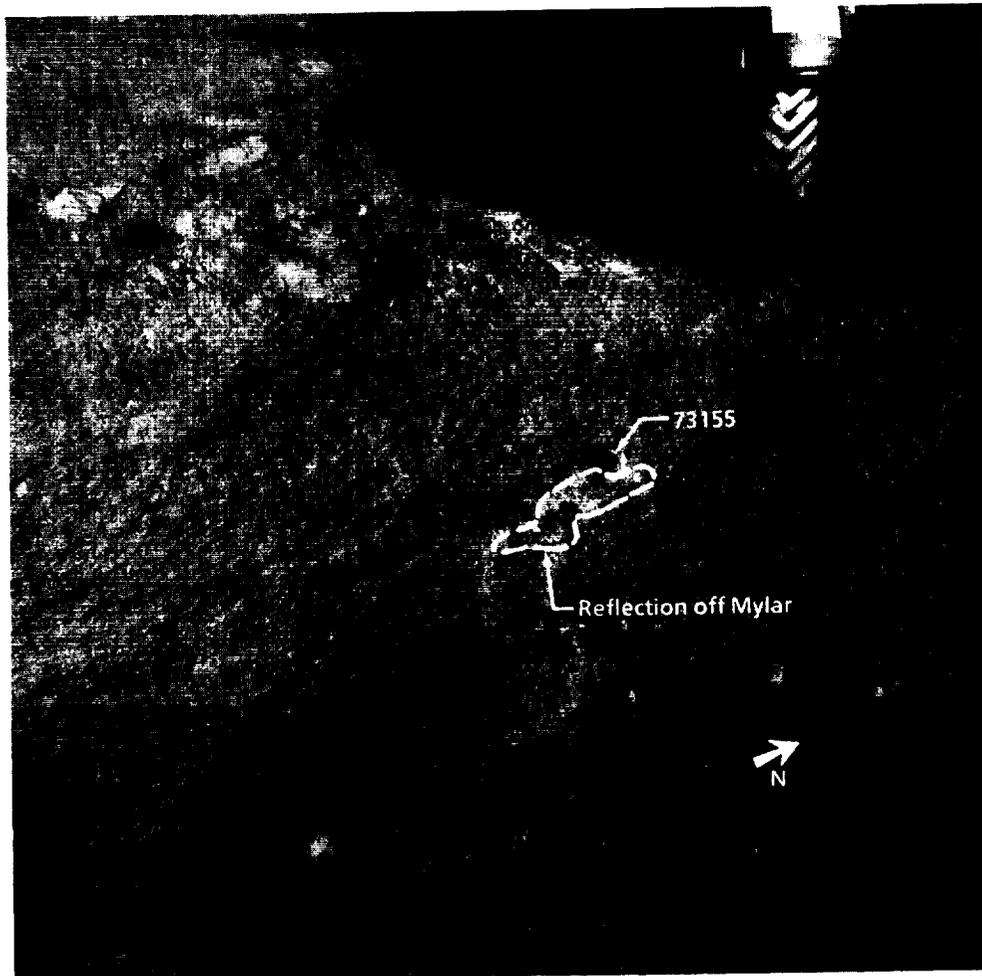
**MOMENT MEASURE DATA**

Wt % held	Ø size
5	0.25
16	1.84
25	2.58
50	4.17
75	5.70
84	5.92
95	6.72

**SIZE DISTRIBUTION HISTOGRAM**



ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



73140 Sample Environment

AS17-138-21098

Pre-sampling, 73140 was  
sampled just to the left of  
this picture, about 4 m  
south of LRV.

**Soil: 73140**  
(subsample 73141,4)  
D.S. McKay PI

**LOCATION COMMENTS:**

This is a trench sample collected to a depth of 15 cm near surface sample 73120 at Station 2A, about 750 meters north-northeast of Station 2 at the base of South Massif on the light mantle deposits. The site is generally level, with fragments >5cm sparse and craters >10 cm sparse.

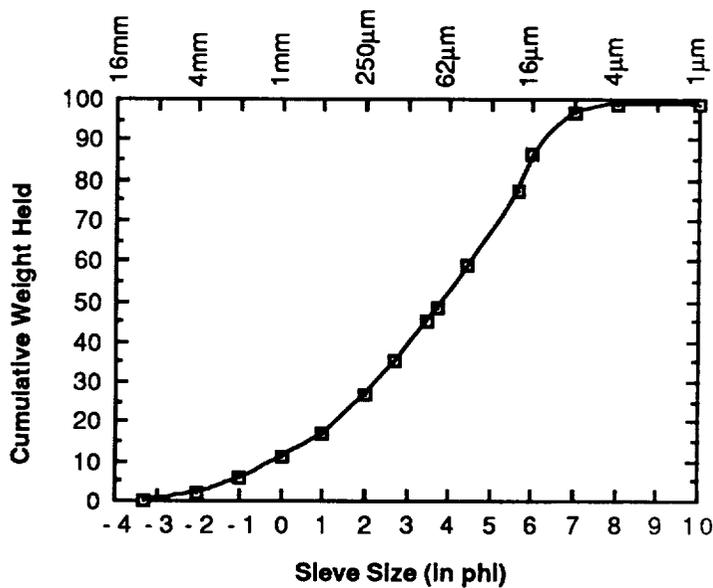
**MATURITY INDEX:**

$I_p/FeO = 48$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.06
2000.00	3.60
1000.00	5.38
500.00	6.04
250.00	9.96
150.00	8.19
90.00	9.72
75.00	3.52
45.00	10.37
20.00	18.41
15.60	8.75
7.80	10.63
3.90	2.08
1.00	0.29

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



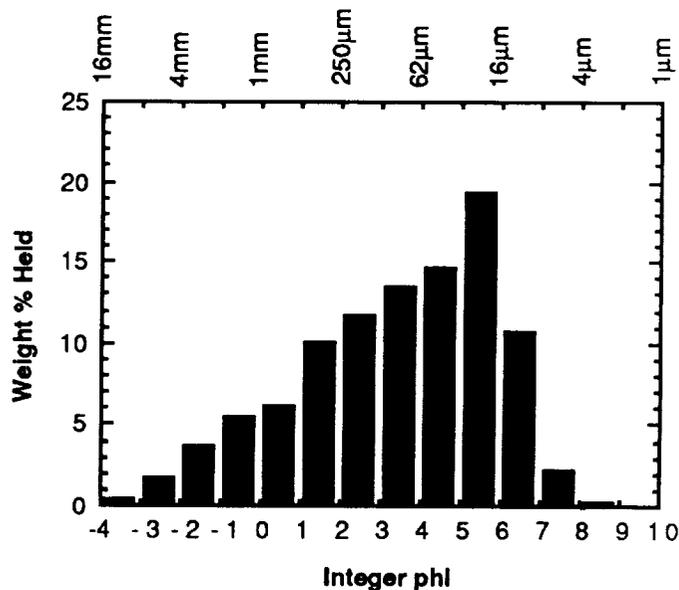
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.53
Median:	3.85
Mode:	5.50
Sorting:	2.45
Skewness:	-0.23
Kurtosis:	0.86

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.16
16	0.84
25	1.81
50	3.85
75	5.52
84	5.91
95	6.68

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 73140**  
 (subsample 73141,12)  
 D.S. McKay PI

**LOCATION COMMENTS:**

This is a trench sample collected to a depth of 15 cm near surface sample 73120 at Station 2A, about 750 meters north-northeast of Station 2 at the base of South Massif on the light mantle deposits. The site is generally level, with fragments >5cm sparse and craters >10 cm sparse.

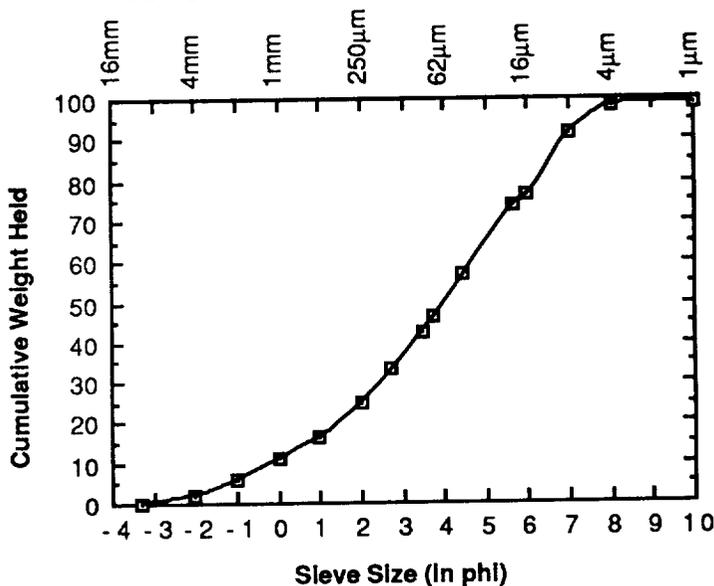
**MATURITY INDEX:**

$I_p/FeO = 48$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.06
2000.00	3.60
1000.00	5.38
500.00	5.32
250.00	8.78
150.00	7.99
90.00	9.52
75.00	3.63
45.00	10.67
20.00	17.19
15.60	2.22
7.80	15.38
3.90	6.43
1.00	0.83

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



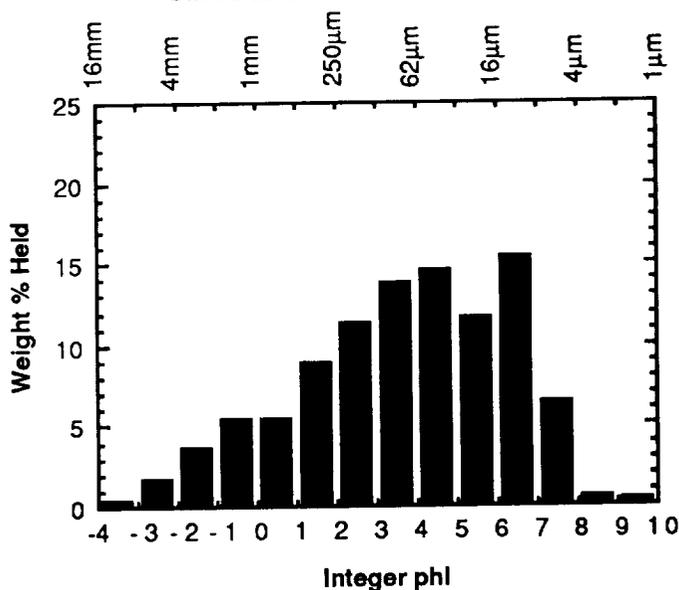
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.81
Median:	4.00
Mode:	6.50
Sorting:	2.69
Skewness:	-0.15
Kurtosis:	0.93

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.16
16	0.94
25	1.99
50	4.00
75	5.78
84	6.50
95	7.42

**SIZE DISTRIBUTION HISTOGRAM**





73220 Sample Environment

AS17-138-21147

Photo taken after digging  
and before sampling. Note  
compacted smooth surface.

**Soil: 73220**  
 (subsample 73221,11)  
 E.A. King PI

**LOCATION COMMENTS:**

This is a skim sample from the top 1 cm of trench (73240 is from the bottom). The trench is on the rim of a 10 meter crater in light mantle deposits at Station 3. The site slopes 7 degrees to the east, 1-10 cm fragments are common and >10 cm fragments are sparse.

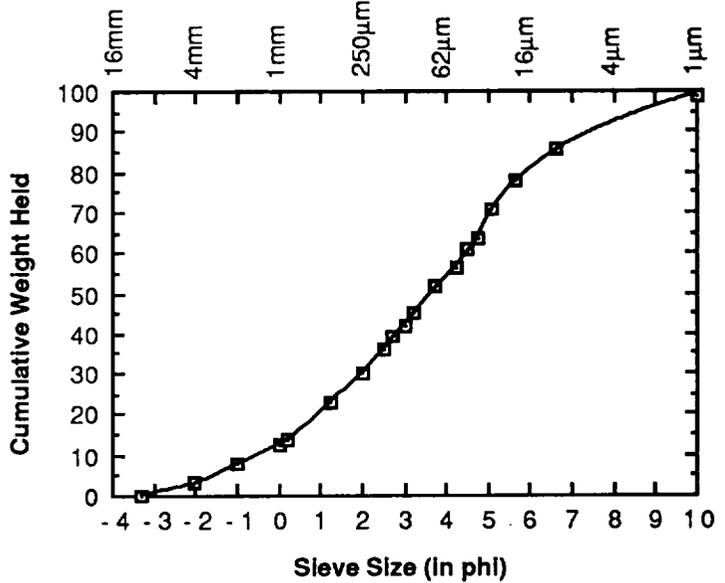
**MATURITY INDEX:**

$I_p/FeO = 43$  (submature)

**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	2.97
2000.00	4.69
1000.00	4.87
841.00	1.37
420.00	9.15
250.00	7.34
177.00	5.69
150.00	2.88
125.00	2.90
105.00	3.51
74.00	6.27
53.00	4.69
44.00	4.38
37.00	2.58
30.00	7.58
20.00	6.68
10.00	7.95
1.00	13.49

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



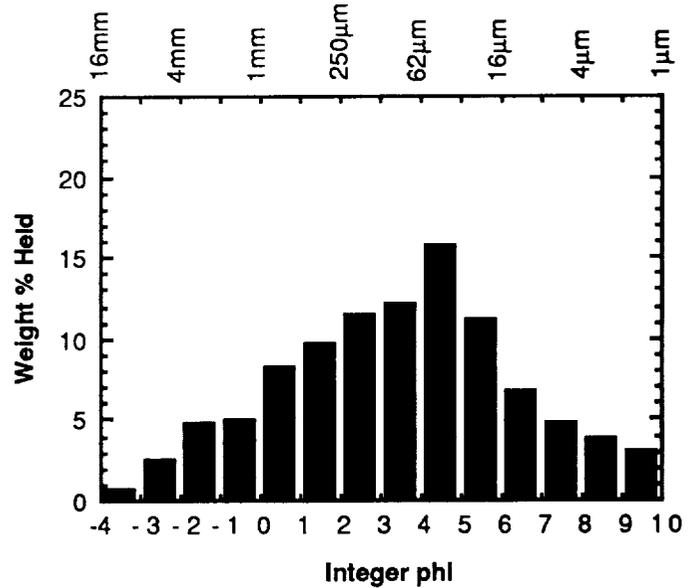
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.51
Median:	3.61
Mode:	4.50
Sorting:	3.04
Skewness:	-0.03
Kurtosis:	1.08

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-1.56
16	0.50
25	1.46
50	3.61
75	5.39
84	6.41
95	8.76

**SIZE DISTRIBUTION HISTOGRAM**



Soil: 73220  
(subsample 73221,1)  
D.S. McKay PI

LOCATION COMMENTS:

This is a skim sample from the top 1 cm of trench (73240 is from the bottom). The trench is on the rim of a 10 meter crater in light mantle deposits at Station 3. The site slopes 7 degrees to the east, 1-10 cm fragments are common and >10 cm fragments are sparse.

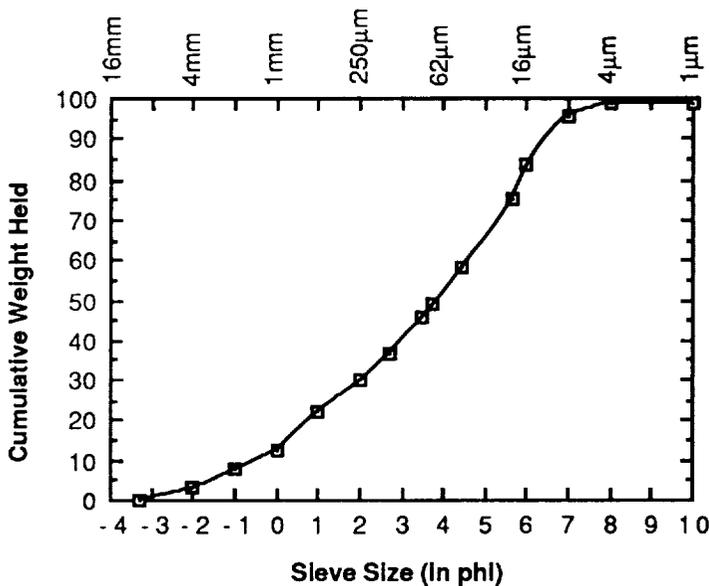
MATURITY INDEX:

$I_g/FeO = 43$  (submature)

TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.97
2000.00	4.69
1000.00	4.87
500.00	9.86
250.00	7.56
150.00	6.93
90.00	8.77
75.00	3.21
45.00	9.63
20.00	16.83
15.60	8.67
7.80	11.73
3.90	2.89
1.00	0.40

CUMULATIVE WEIGHT DISTRIBUTION CURVE



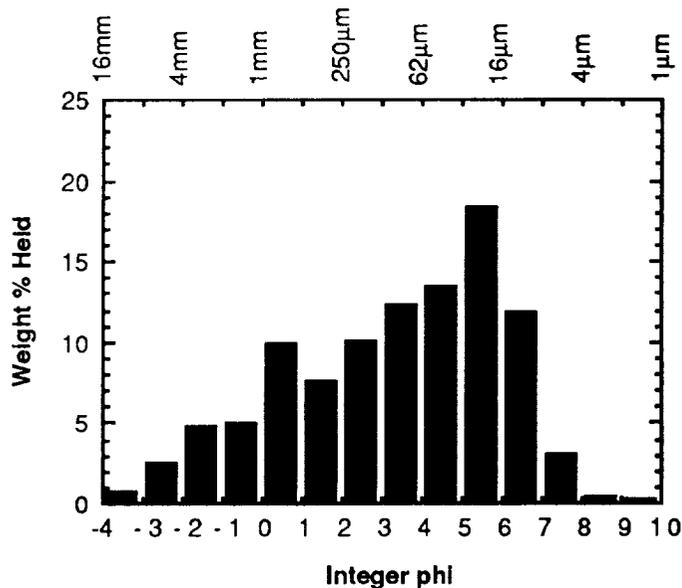
GRAPHIC AND MOMENT MEASURES

Mean:	3.40
Median:	3.83
Mode:	5.50
Sorting:	2.68
Skewness:	-0.25
Kurtosis:	0.80

MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-1.56
16	0.37
25	1.34
50	3.83
75	5.63
84	6.00
95	6.85

SIZE DISTRIBUTION HISTOGRAM

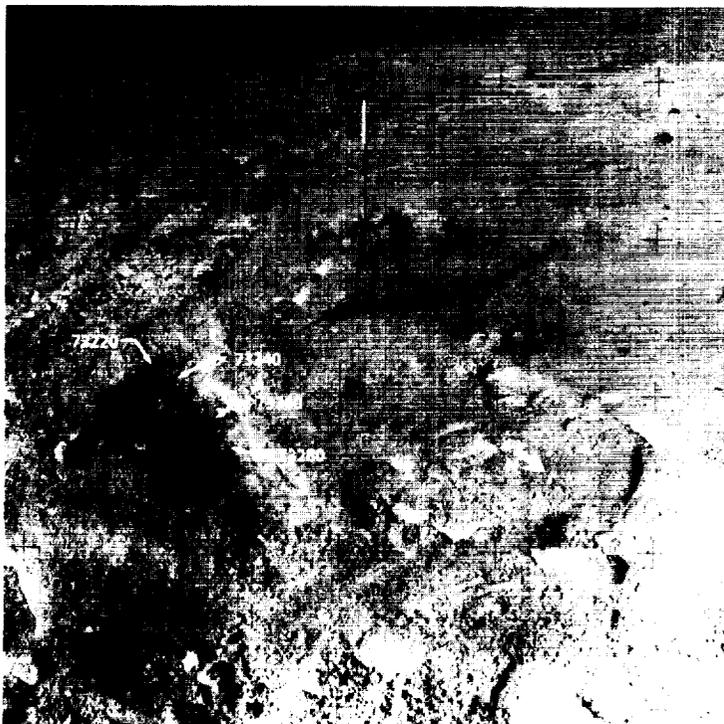
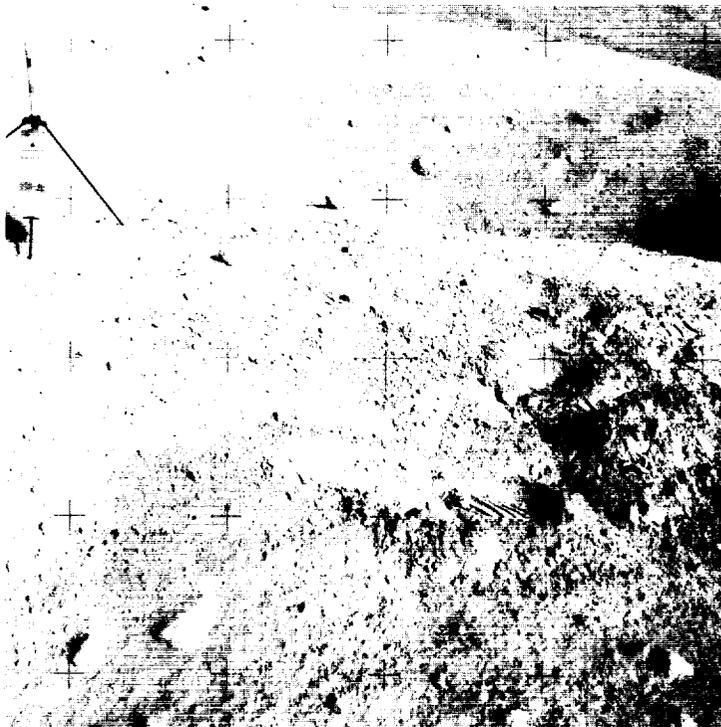


0.5

73240 Sample Environment

AS17-138-21147

Photo taken after digging  
trench and before sampling.  
Note smooth, compacted  
trench surface.



73240 Sample Environment

AS17-138-21178

Post-sampling .

**Soil: 73240**  
(subsample 73241,8)  
E.A. King PI

**LOCATION COMMENTS:**

This is a trench sample from the upper part of a 15 cm deep trench containing a medium gray surface layer and a 3 cm light gray layer just below the surface. It was collected at Station 3 with skim sample 73220 on the rim of a 10 meter crater in the light mantle. The site slopes 7 degrees to the east, 1-10 cm fragments are common and >10 cm fragments are sparse.

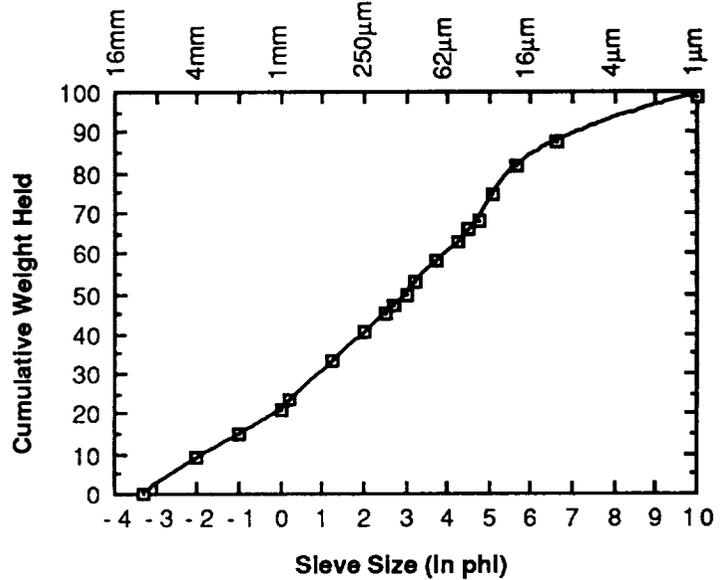
**MATURITY INDEX:**

$I_g/FeO = 18$  (immature)

**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	9.02
2000.00	5.83
1000.00	6.06
841.00	2.85
420.00	9.35
250.00	7.12
177.00	5.07
150.00	2.05
125.00	2.50
105.00	3.35
74.00	5.08
53.00	4.21
44.00	3.54
37.00	2.00
30.00	6.72
20.00	7.02
10.00	6.11
1.00	11.13

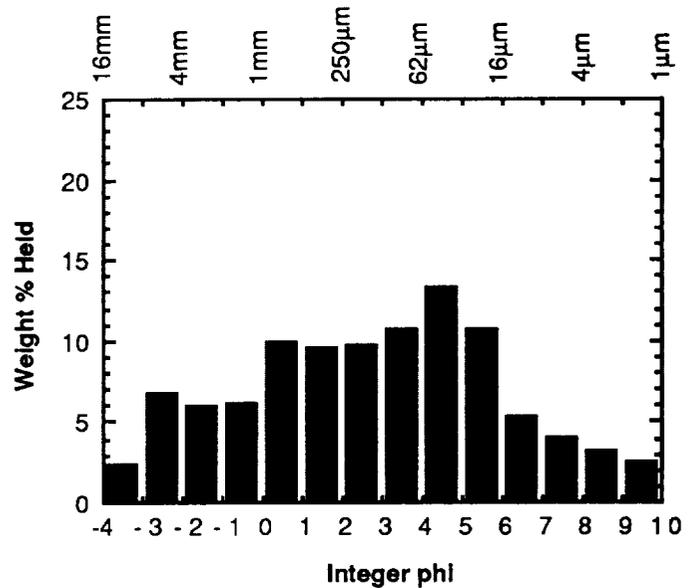
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

Mean:	2.72
Median:	3.01
Mode:	4.50
Sorting:	3.38
Skewness:	-0.07
Kurtosis:	0.97

**SIZE DISTRIBUTION HISTOGRAM**



**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-2.62
16	-0.81
25	0.38
50	3.01
75	5.08
84	5.95
95	8.54

**Soil: 73240**  
 (subsample 73241,9)  
 D.S. McKay PI

**LOCATION COMMENTS:**

This is a trench sample from the upper part of a 15 cm deep trench containing a medium gray surface layer and a 3 cm light gray layer just below the surface. It was collected at Station 3 with skim sample 73220 on the rim of a 10 meter crater in the light mantle. The site slopes 7 degrees to the east, 1-10 cm fragments are common and >10 cm fragments are sparse.

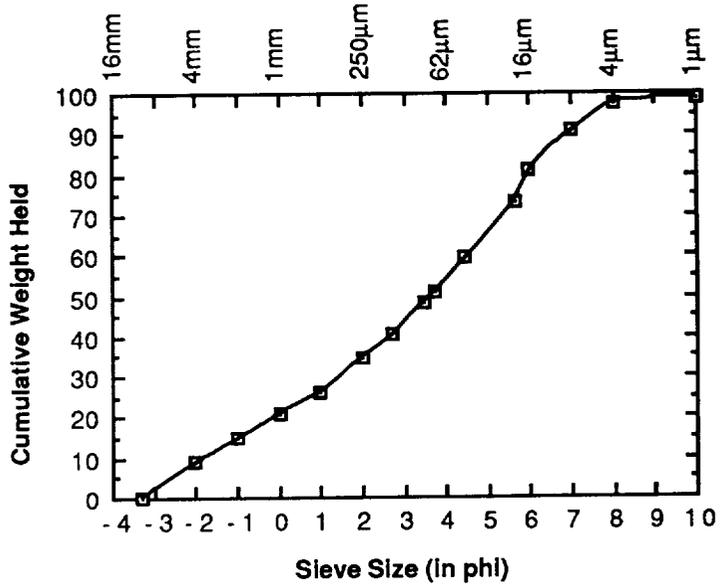
**MATURITY INDEX:**

$I_g/FeO = 18$  (immature)

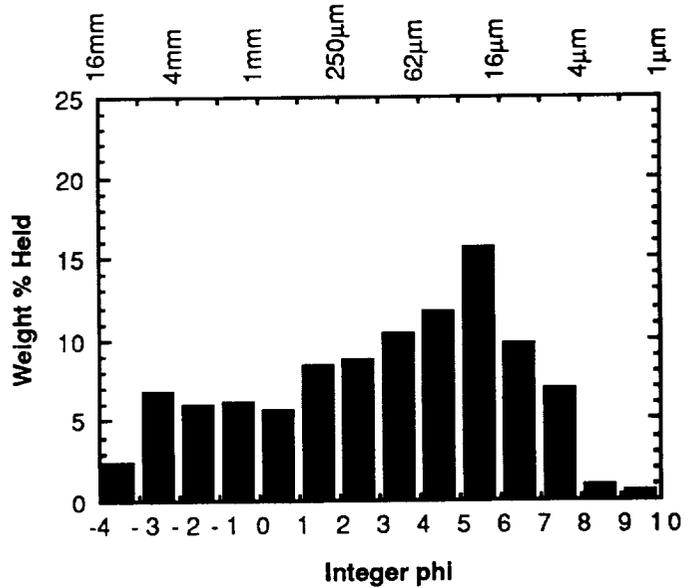
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	9.02
2000.00	5.83
1000.00	6.06
500.00	5.50
250.00	8.32
150.00	5.98
90.00	7.84
75.00	2.39
45.00	8.35
20.00	14.18
15.60	7.56
7.80	9.65
3.90	6.87
1.00	1.46

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.03
Median:	3.63
Mode:	5.50
Sorting:	3.31
Skewness:	-0.24
Kurtosis:	0.84

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.62
16	-0.81
25	0.75
50	3.63
75	5.73
84	6.25
95	7.56



73260 Sample Environment

AS17-138-21148

Pre-sampling, note marbled  
zone.

Bailey, N. G.; and Ulrich, G. E.: Apollo 17 voice transcript pertaining to the geology of the landing site. USGS, 1975.

Morris, R. V.: Surface exposure indices of lunar soils: A comparative FMR study. *Proceedings of the Seventh Lunar Science Conference*, vol. 1, 1976, pp. 315-335.

Duke, M. B.; and Nagle, J. S.: Lunar Core Catalog. JSC Publication #09252, June 1976.

Allton, J. H.; and Waltz, S. R.: Depth Scales for Apollo 15, 16, and 17 drill cores. *Proceedings of the 11th Lunar and Planetary Science Conference*, 1980, pp. 1463-1477.

Ferland, R. M.; Nagle, J. S.; and Allton, J. H.: Catalog of the Apollo 16 Lunar Core 60009/60010. JSC Publication #17172, March 1982.

Allton, J. H.: Catalog of Apollo Lunar Surface Geological Sampling Tools and Containers. JSC Publication #23454, March 1989.

References relating to statistical parameters:

Folk, R. L. and Ward, W. C.: Brazos river bar: a study in the significance of grain size parameters: *Jour. Sedimentary Petrology*, vol. 27, 1957, p. 3-26.

Sahu, B. K.: Deposition mechanisms from the size analysis of clastic sediments: *Jour. Sedimentary Petrology*, vol. 34, 1964, pp. 73-83.

Folk, R. L.: A review of grain-size parameters: *Sedimentology*, vol. 6, 1966, pp. 73-93.

Weeks, R. A.: Correlation of the specific intensity of the FMR of fines with particle size: *Abstracts from the Fifth Lunar Science Conference*, Lunar Science Institute, Houston, TX, 1974.

Stineman, R. W.: A consistently well-behaved method of interpolation. *Creative Computing*, vol. 6, 1980, pp. 54-57.

End Date April 22, 1993

McKay, D. S.; Dungan, M. A.; Morris, R. V.; and Fruland, R. M.: Grain size, petrographic, and FMR studies of the double core 60009/10: A study of soil evolution. *Proceedings of the Eighth Lunar Science Conference*, 1977, pp. 2929-2952.

McKay, D. S.; Heiken, G. H.; and Waits, G. A.: Core 7400 1/2: Grain size and petrology as a key to the rate of in-situ reworking and lateral transport on the lunar surface. *Proceedings of the Ninth Lunar and Planetary Science Conference*, 1978, pp. 1913-1932.

McKay, D. S.; Basu, A.; and Waits, G.: Grain size and the evolution of Luna 24 soils. Mare Crisium: the View from Luna 24. *Pergamon Press*, 1978, pp. 125-136.

McKay, D. S.; Basu, A.; and Nace, G.: Lunar core 15010/11; Grain size, petrology, and implications for regolith dynamics. *Proceedings of the 11th Lunar and Planetary Science Conference*, 1980, pp. 1531-1550.

Reports, papers, and catalogs that list curatorial and sampling information:

Apollo 15 Crew Debriefing for Science and Photography. MSC Publication #04562. August 23, 1971.

Carrier, W. D.: Lunar Soil Grain Size Distribution. *The Moon*, vol. 6, 1973, pp. 250-263.

Heiken, G. H.; McKay, D. S.; and Fruland, R. M.: Apollo 16 soils: Grain size analyses and petrography. *Proceedings of the Fourth Lunar Science Conference*, vol. 1, 1973, pp. 251-265.

Lindsay, J. F.: Evolution of lunar soil grain-size and shape parameters. *Proceedings of the Fourth Lunar Science Conference*, vol. 1, 1973, pp. 215-224.

Lindsay, J. F.: A general model for the textural evolution of lunar soil. *Proceedings of the Fifth Lunar Conference*, vol. 1, 1974, pp. 861-878.

Bailey, N. G.; and Ulrich, G. E.: Apollo 11 voice transcript pertaining to the geology of the landing site. USGS, 1974.

Bailey, N. G.; and Ulrich, G. E.: Apollo 12 voice transcript pertaining to the geology of the landing site. USGS, 1975.

Bailey, N. G.; and Ulrich, G. E.: Apollo 14 voice transcript pertaining to the geology of the landing site. USGS, 1975.

Bailey, N. G.; and Ulrich, G. E.: Apollo 15 voice transcript pertaining to the geology of the landing site. USGS, 1975.

Bailey, N. G.; and Ulrich, G. E.: Apollo 16 voice transcript pertaining to the geology of the landing site. USGS, 1975.

**Soil: 73260**  
(subsample 73261,1)  
D.S. McKay PI

**LOCATION COMMENTS:**

This is a trench sample from part of the "marbled zone" 5-10 cm below the surface. It may also include some material from the small patch of light material visible in the pre-sampling photographs. It was collected at Station 3 with skim sample 73220 on the rim of a 10 meter crater in the light mantle. The site slopes 7 degrees to the east, 1-10 cm fragments are common and >10 cm fragments are sparse.

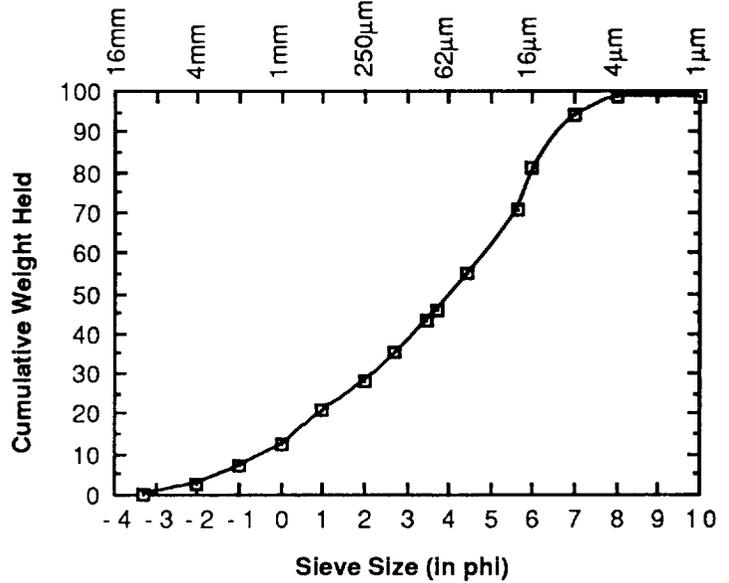
**MATURITY INDEX:**

$I_g/FeO = 45$  (submature)

**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	2.87
2000.00	4.21
1000.00	5.34
500.00	8.28
250.00	7.63
150.00	6.64
90.00	8.23
75.00	2.87
45.00	8.93
20.00	15.68
15.60	10.18
7.80	13.24
3.90	4.37
1.00	0.53

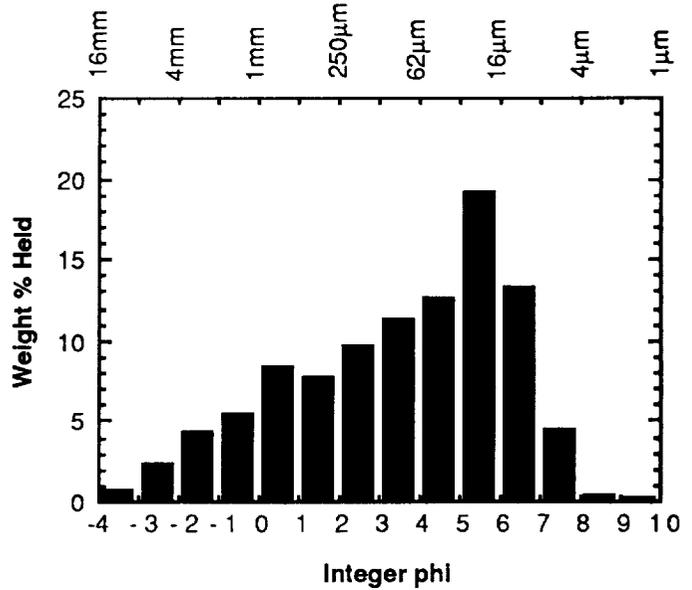
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.56
Median:	4.07
Mode:	5.50
Sorting:	2.74
Skewness:	-0.27
Kurtosis:	0.83

**SIZE DISTRIBUTION HISTOGRAM**



**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-1.45
16	0.44
25	1.57
50	4.07
75	5.80
84	6.17
95	7.17

**Soil: 73260**  
(subsample 73261,11)  
E.A. King PI

**LOCATION COMMENTS:**

This is a trench sample from part of the "marbled zone" 5-10 cm below the surface. It may also include some material from the small patch of light material visible in the pre-sampling photographs. It was collected at Station 3 with skim sample 73220 on the rim of a 10 meter crater in the light mantle. The site slopes 7 degrees to the east, 1-10 cm fragments are common and >10 cm fragments are sparse.

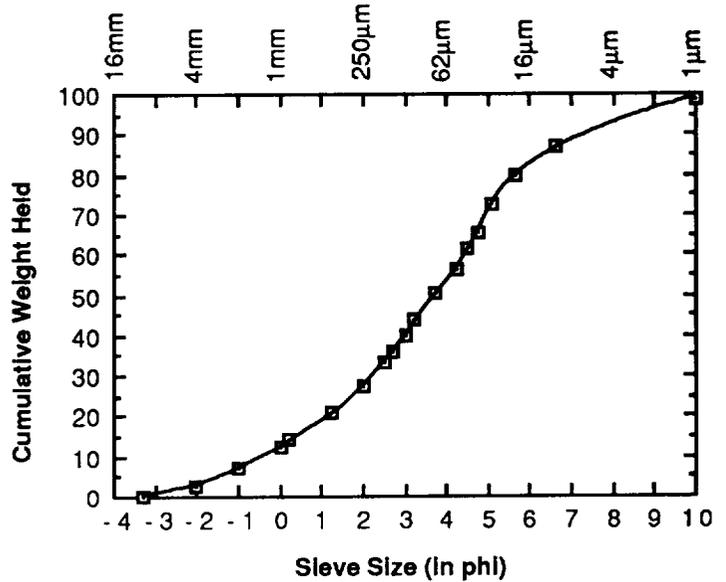
**MATURITY INDEX:**

$I_p/FeO = 45$  (submature)

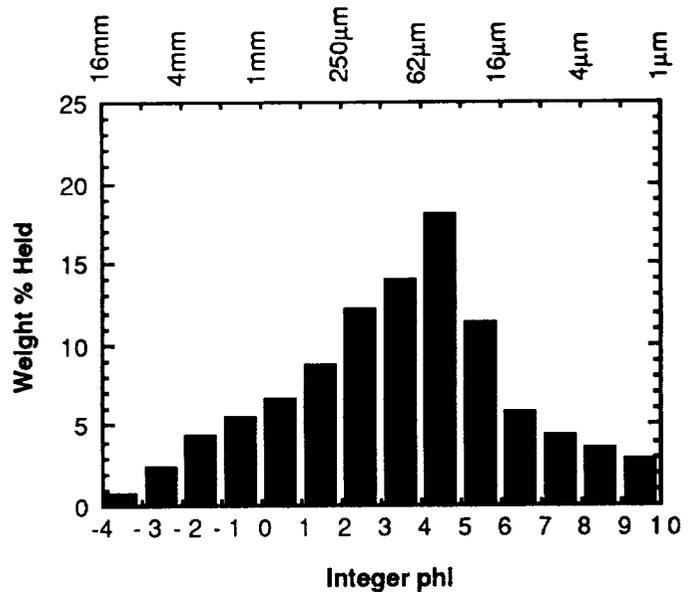
**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	2.87
2000.00	4.21
1000.00	5.34
841.00	1.67
420.00	6.55
250.00	7.03
177.00	5.60
150.00	2.91
125.00	3.49
105.00	3.97
74.00	6.88
53.00	5.88
44.00	4.73
37.00	4.15
30.00	7.34
20.00	7.38
10.00	6.60
1.00	12.39

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.48
Median:	3.72
Mode:	4.50
Sorting:	2.95
Skewness:	-0.07
Kurtosis:	1.20

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-1.45
16	0.54
25	1.74
50	3.72
75	5.21
84	6.19
95	8.68

ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



73280 Sample Environment

AS17-138-21148

Pre-sampling view of  
trench wall.

**Soil: 73280**  
 (subsample 73281,1)  
 D.S. McKay PI

**LOCATION COMMENTS:**

This is a trench sample from about 5-10 cm below the surface. It appears to be similar to the light gray material just below the surface. It was collected at Station 3 with skim sample 73220 on the rim of a 10 meter crater in the light mantle. The site slopes 7 degrees to the east, 1-10 cm fragments are common and >10 cm fragments are sparse.

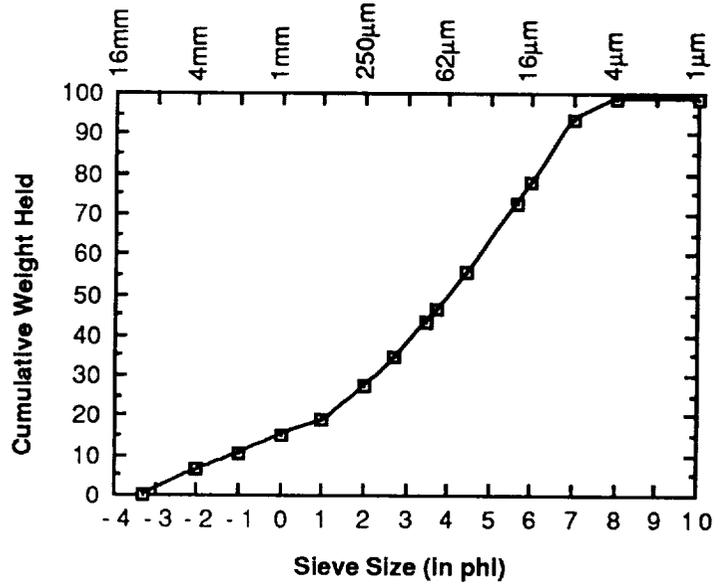
**MATURITY INDEX:**

$I_g/FeO = 34$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	6.26
2000.00	4.15
1000.00	4.71
500.00	3.58
250.00	8.77
150.00	6.95
90.00	8.76
75.00	2.99
45.00	9.45
20.00	17.12
15.60	5.05
7.80	15.94
3.90	4.70
1.00	0.55

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



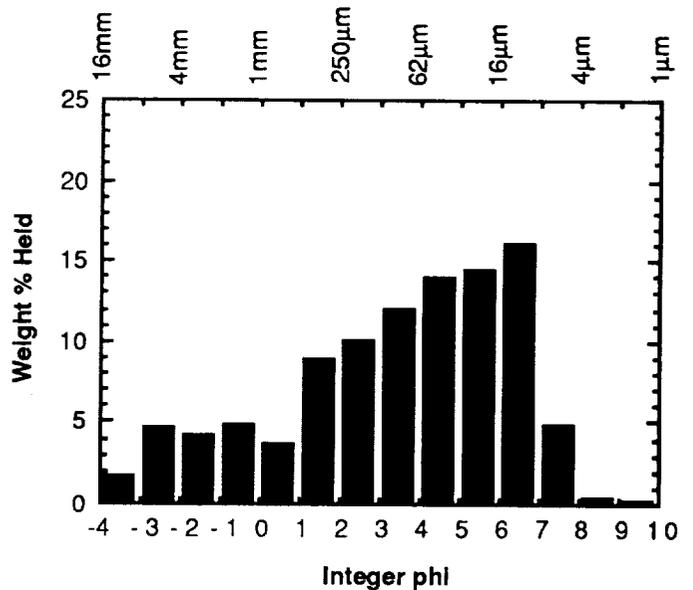
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.56
Median:	4.05
Mode:	6.50
Sorting:	2.98
Skewness:	-0.28
Kurtosis:	0.96

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.28
16	0.23
25	1.73
50	4.05
75	5.80
84	6.40
95	7.23

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 73280**  
 (subsample 73281,10)  
 E.A. King PI

**LOCATION COMMENTS:**

This is a trench sample from about 5-10 cm below the surface. It appears to be similar to the light gray material just below the surface. It was collected at Station 3 with skim sample 73220 on the rim of a 10 meter crater in the light mantle. The site slopes 7 degrees to the east, 1-10 cm fragments are common and >10 cm fragments are sparse.

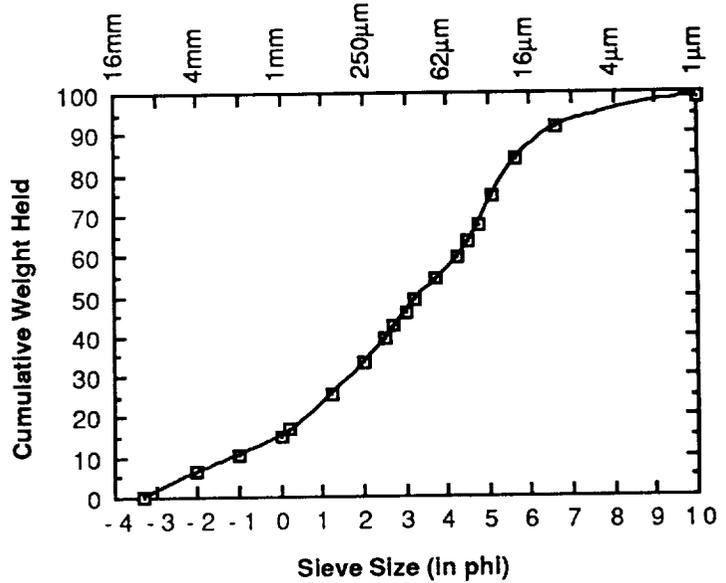
**MATURITY INDEX:**

$I_s/FeO = 34$  (submature)

**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	6.26
2000.00	4.15
1000.00	4.71
841.00	1.55
420.00	9.07
250.00	7.40
177.00	5.93
150.00	3.28
125.00	3.41
105.00	3.48
74.00	5.14
53.00	4.96
44.00	3.84
37.00	4.05
30.00	7.40
20.00	8.89
10.00	8.16
1.00	7.33

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



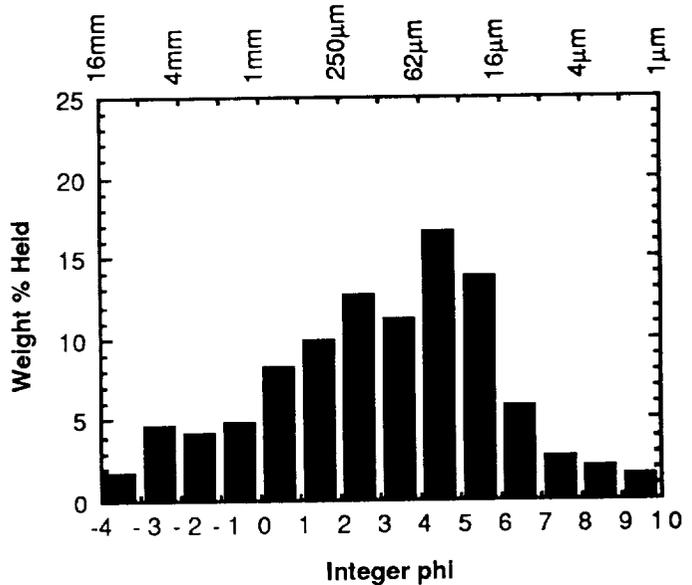
**GRAPHIC AND MOMENT MEASURES**

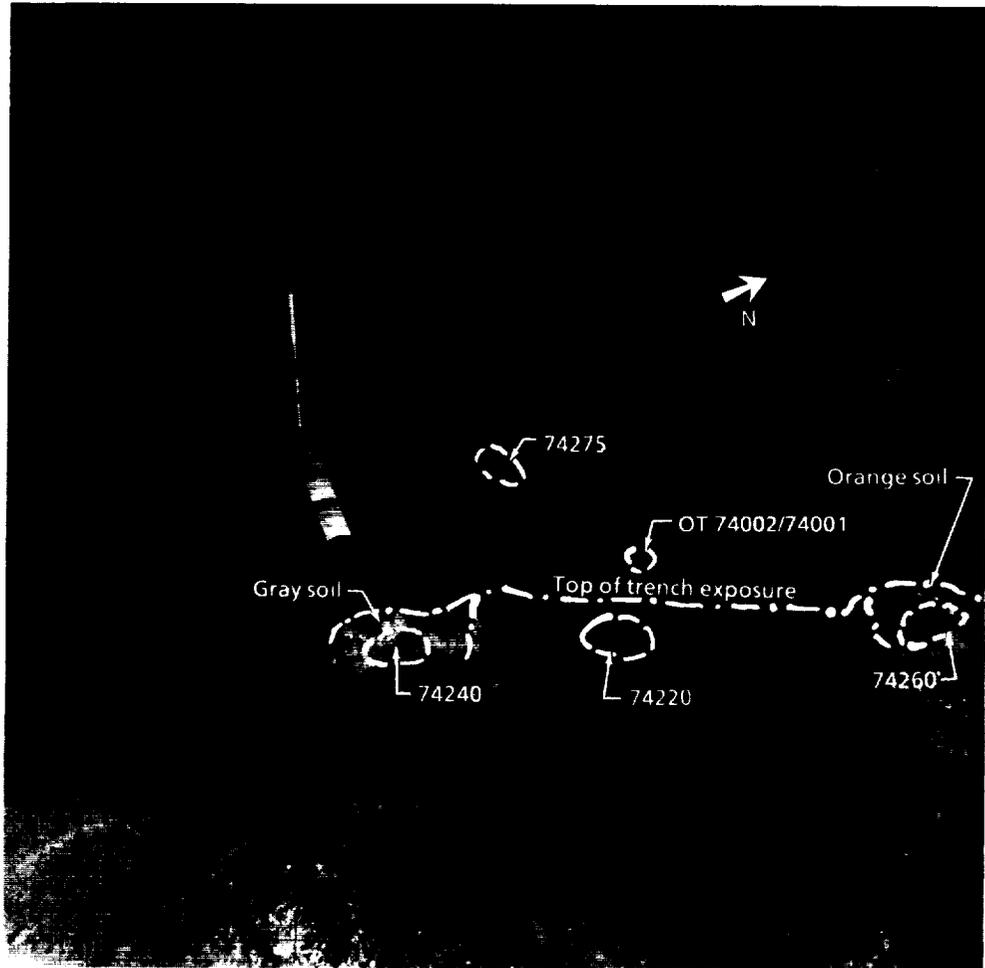
Mean:	3.05
Median:	3.32
Mode:	4.50
Sorting:	2.92
Skewness:	-0.13
Kurtosis:	1.06

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-2.28
16	0.15
25	1.17
50	3.32
75	5.08
84	5.69
95	7.84

**SIZE DISTRIBUTION HISTOGRAM**





74001/74002 Sample Environment

AS17-137-20990

Pre-sampling.

# Soil: 74001

(subsample 74001,125) (Core; depth below surface, 57.0 - 57.5 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 74001/74002 was collected at the south rim of 120 meter Shorty crater, at Station 4. The cored material is unusually compact. The core contains orange and red colored soil with nearly vertical contacts. The site is near the low place in the crater rim crest. The fragment population is variable. Craters up to several meters in diameter are scattered near the sample site. The core is almost entirely without coarse fines.

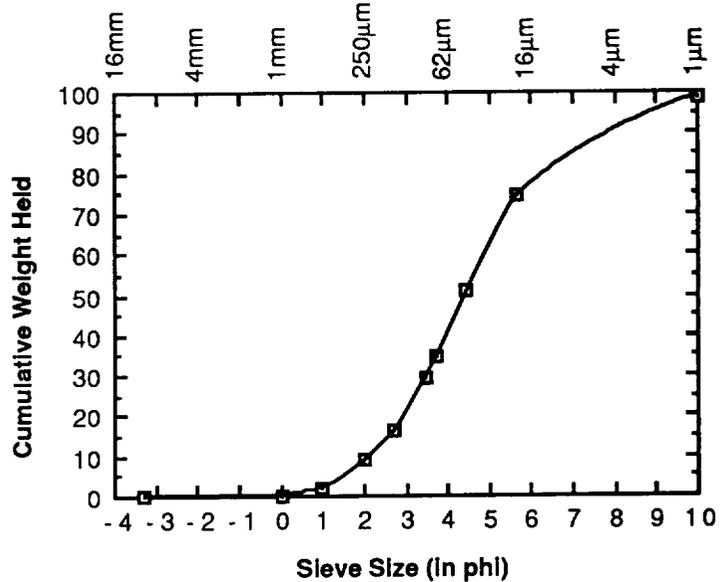
## MATURITY INDEX:

$I_s/FeO = 0.2$  (immature)

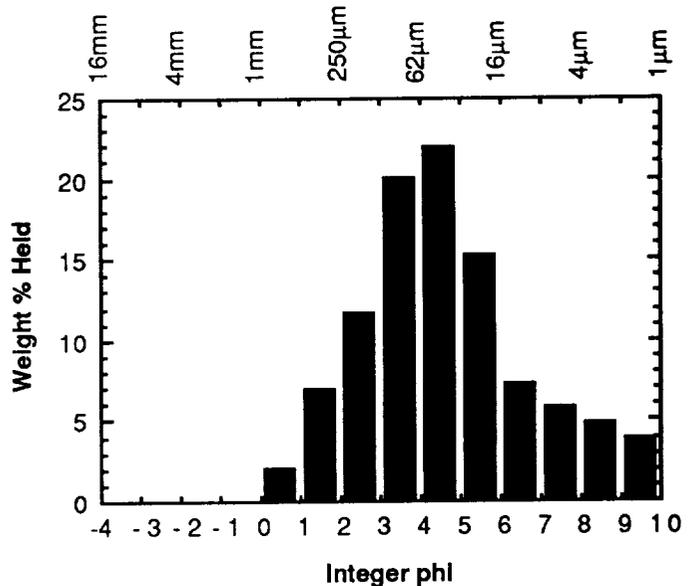
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	1.97
250.00	6.93
150.00	7.50
90.00	12.93
75.00	5.24
45.00	16.61
20.00	23.35
1.00	24.48

CUMULATIVE WEIGHT DISTRIBUTION CURVE



SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	4.69
Median:	4.42
Mode:	4.50
Sorting:	2.20
Skewness:	0.21
Kurtosis:	1.26

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.52
16	2.70
25	3.25
50	4.42
75	5.70
84	6.94
95	9.04

# Soil: 74001

(subsample 74001,119) (Core; depth below surface, 50.0 - 50.5 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 74001/74002 was collected at the south rim of 120 meter Shorty crater, at Station 4. The cored material is unusually compact. The core contains orange and red colored soil with nearly vertical contacts. The site is near the low place in the crater rim crest. The fragment population is variable. Craters up to several meters in diameter are scattered near the sample site. The core is almost entirely without coarse fines.

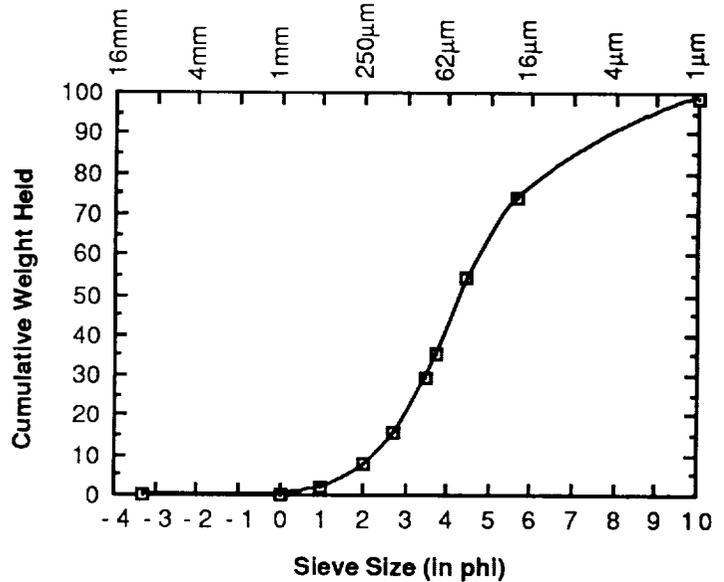
## MATURITY INDEX:

$I_g/FeO = 0.2$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	1.85
250.00	5.70
150.00	8.16
90.00	13.84
75.00	5.74
45.00	18.76
20.00	19.83
1.00	25.12

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



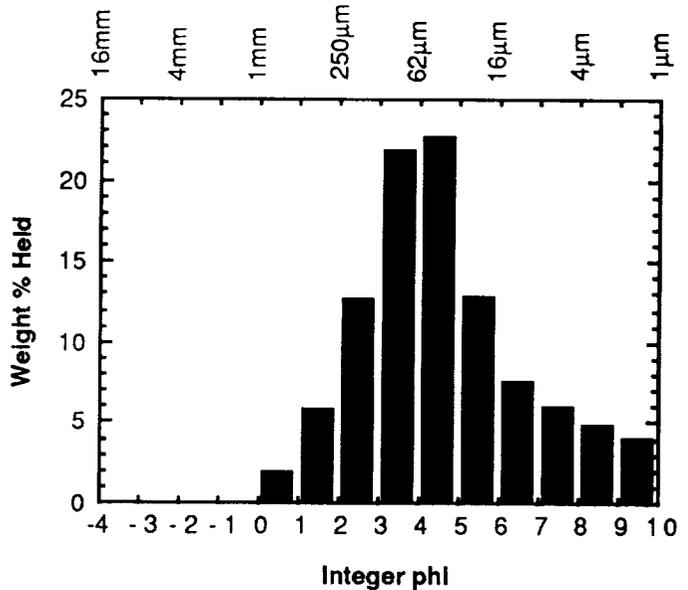
## GRAPHIC AND MOMENT MEASURES

Mean:	4.69
Median:	4.30
Mode:	4.50
Sorting:	2.19
Skewness:	0.28
Kurtosis:	1.21

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.63
16	2.76
25	3.25
50	4.30
75	5.77
84	7.00
95	9.06

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 74001

(subsample 74001,113) (Core; depth below surface, 43.5 - 44.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 74001/74002 was collected at the south rim of 120 meter Shorty crater, at Station 4. The cored material is unusually compact. The core contains orange and red colored soil with nearly vertical contacts. The site is near the low place in the crater rim crest. The fragment population is variable. Craters up to several meters in diameter are scattered near the sample site. The core is almost entirely without coarse fines.

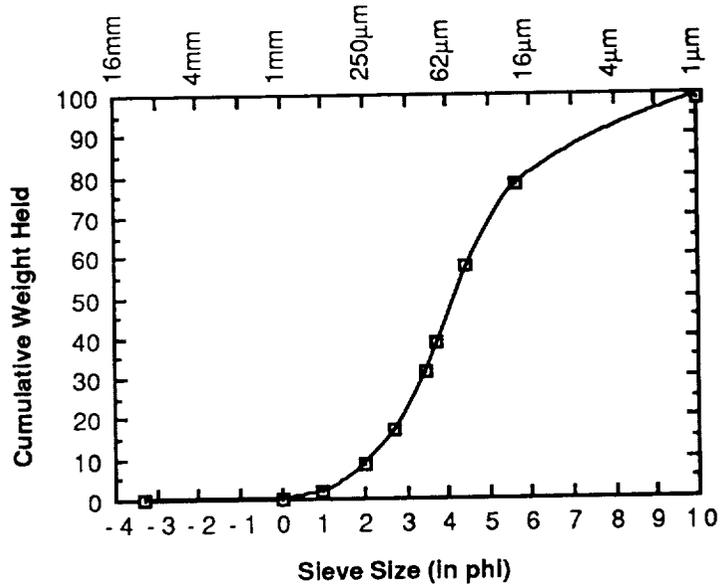
## MATURITY INDEX:

$I_g/FeO = 0.2$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	1.79
250.00	6.71
150.00	8.46
90.00	14.29
75.00	7.01
45.00	19.50
20.00	20.11
1.00	21.13

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



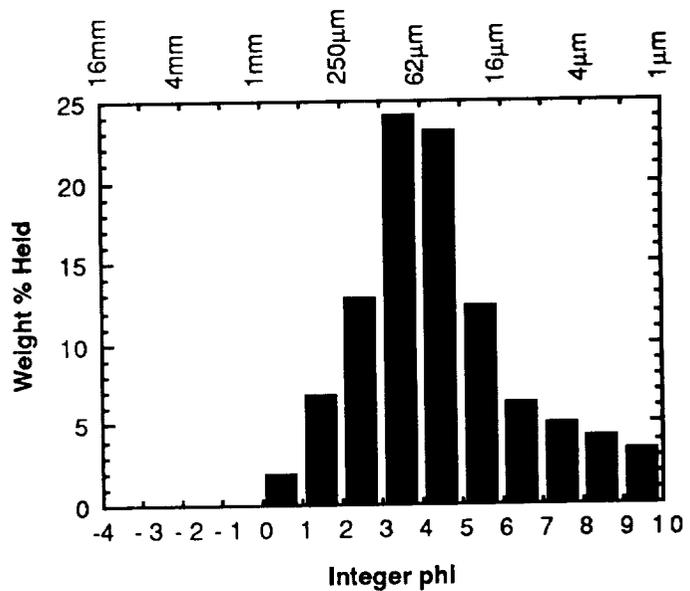
## GRAPHIC AND MOMENT MEASURES

Mean:	4.47
Median:	4.18
Mode:	3.50
Sorting:	2.09
Skewness:	0.26
Kurtosis:	1.37

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.57
16	2.66
25	3.20
50	4.18
75	5.38
84	6.56
95	8.90

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 74001

(subsample 74001,107) (Core; depth below surface, 36.5 - 37.0 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 74001/74002 was collected at the south rim of 120 meter Shorty crater, at Station 4. The cored material is unusually compact. The core contains orange and red colored soil with nearly vertical contacts. The site is near the low place in the crater rim crest. The fragment population is variable. Craters up to several meters in diameter are scattered near the sample site. The core is almost entirely without coarse fines.

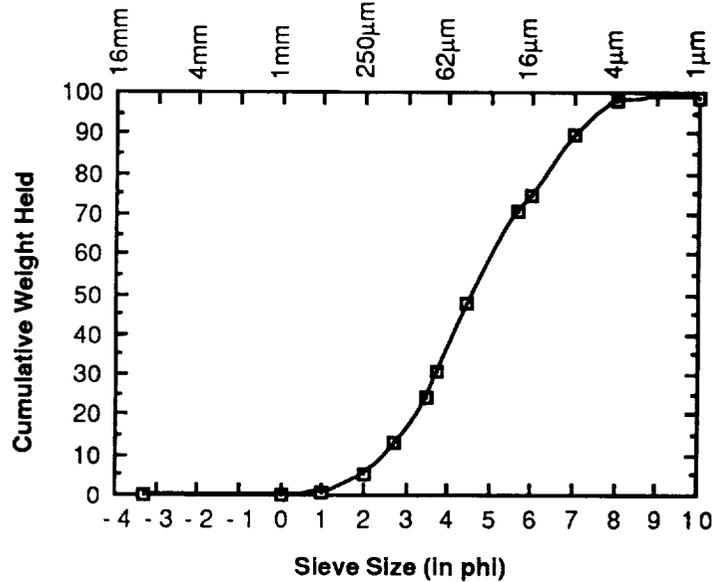
## MATURITY INDEX:

$I_g/FeO = 0.2$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	1.08
250.00	4.75
150.00	6.62
90.00	12.33
75.00	6.53
45.00	19.37
20.00	25.87
1.00	22.45

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



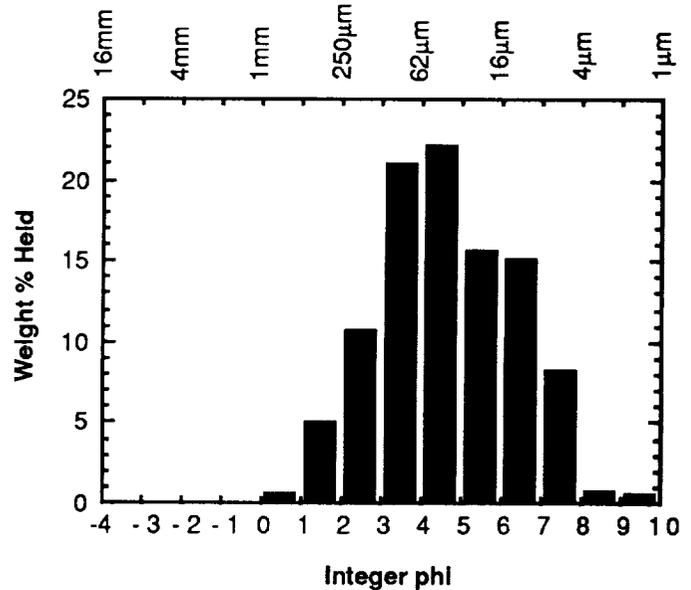
## GRAPHIC AND MOMENT MEASURES

Mean:	4.73
Median:	4.45
Mode:	4.50
Sorting:	2.01
Skewness:	0.25
Kurtosis:	1.43

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.86
16	3.01
25	3.48
50	4.45
75	5.52
84	6.73
95	8.97

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 74001

(subsample 74001,98) (Core; depth below surface, 32.5 - 33.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 74001/74002 was collected at the south rim of 120 meter Shorty crater, at Station 4. The cored material is unusually compact. The core contains orange and red colored soil with nearly vertical contacts. The site is near the low place in the crater rim crest. The fragment population is variable. Craters up to several meters in diameter are scattered near the sample site. The core is almost entirely without coarse fines.

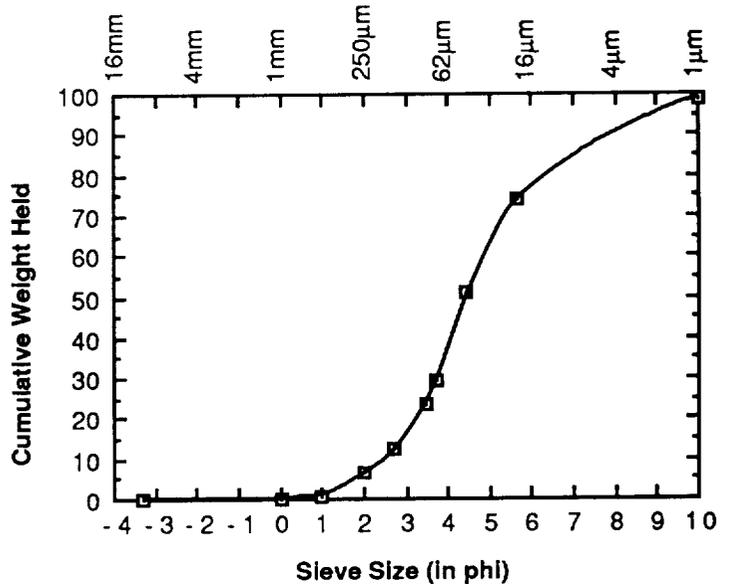
## MATURITY INDEX:

$I_s/FeO = 0.2$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	0.95
250.00	5.39
150.00	5.82
90.00	11.67
75.00	5.60
45.00	21.48
20.00	23.13
1.00	24.96

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



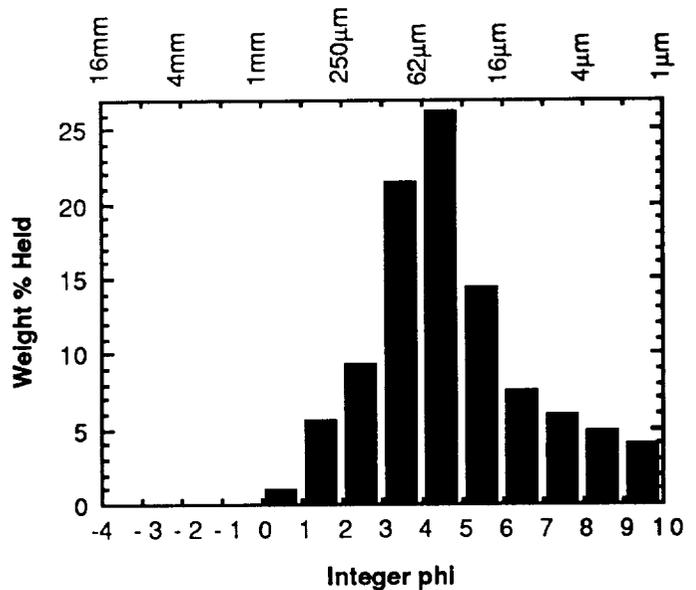
## GRAPHIC AND MOMENT MEASURES

Mean:	4.82
Median:	4.44
Mode:	4.50
Sorting:	2.09
Skewness:	0.28
Kurtosis:	1.34

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.79
16	3.04
25	3.53
50	4.44
75	5.75
84	6.98
95	9.06

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 74002

(subsample 74002,182) (Core; depth below surface, 25.5 - 26.0 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 74001/74002 was collected at the south rim of 120 meter Shorty crater, at Station 4. The cored material is unusually compact. The core contains orange and red colored soil with nearly vertical contacts. The site is near the low place in the crater rim crest. The fragment population is variable. Craters up to several meters in diameter are scattered near the sample site. The core is almost entirely without coarse fines.

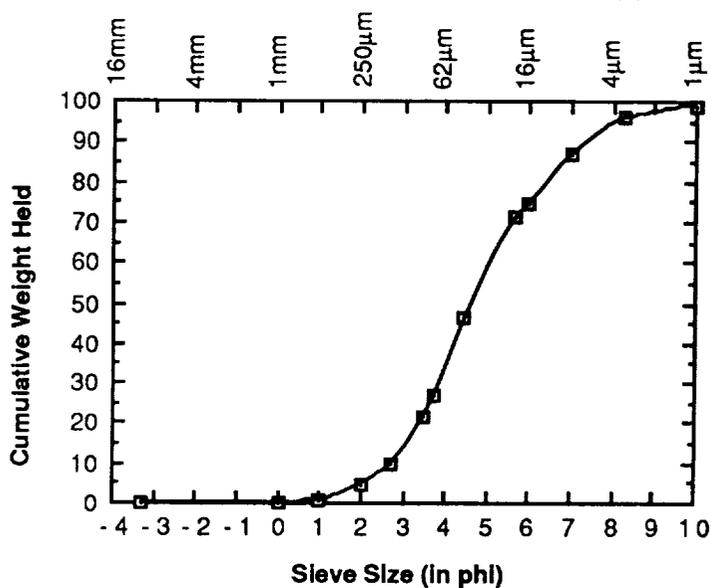
## MATURITY INDEX:

$I_s/FeO = 0.2$  (immature)

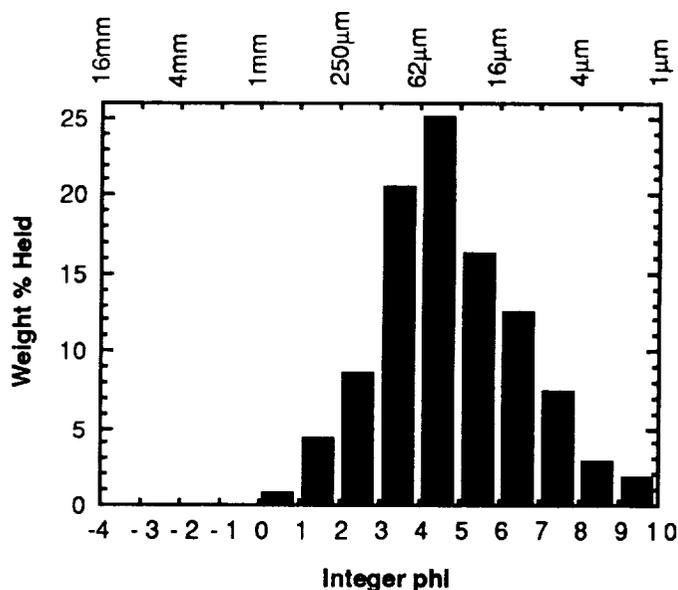
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	0.61
250.00	4.20
150.00	5.27
90.00	11.42
75.00	5.46
45.00	19.57
20.00	24.42
16.00	3.50
8.00	12.49
3.20	8.89
1.00	3.16

CUMULATIVE WEIGHT DISTRIBUTION CURVE



SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	4.83
Median:	4.62
Mode:	4.50
Sorting:	1.79
Skewness:	0.16
Kurtosis:	1.04

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	2.04
16	3.17
25	3.65
50	4.62
75	6.01
84	6.70
95	8.05

# Soil: 74002

(subsample 74002,181) (Core; depth below surface, 18.0 - 18.5 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 74001/74002 was collected at the south rim of 120 meter Shorty crater, at Station 4. The cored material is unusually compact. The core contains orange and red colored soil with nearly vertical contacts. The site is near the low place in the crater rim crest. The fragment population is variable. Craters up to several meters in diameter are scattered near the sample site. The core is almost entirely without coarse fines.

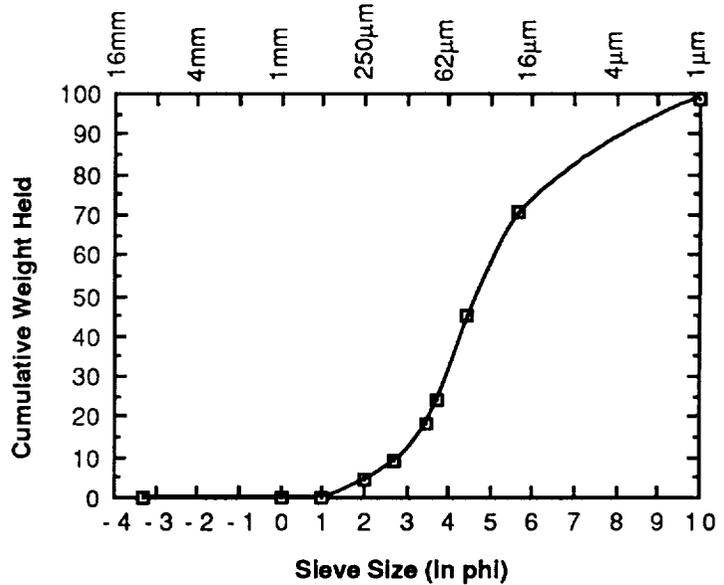
## MATURITY INDEX:

$I_g/FeO = 0.2$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	0.07
250.00	4.34
150.00	4.99
90.00	9.00
75.00	5.57
45.00	21.15
20.00	25.17
1.00	28.72

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



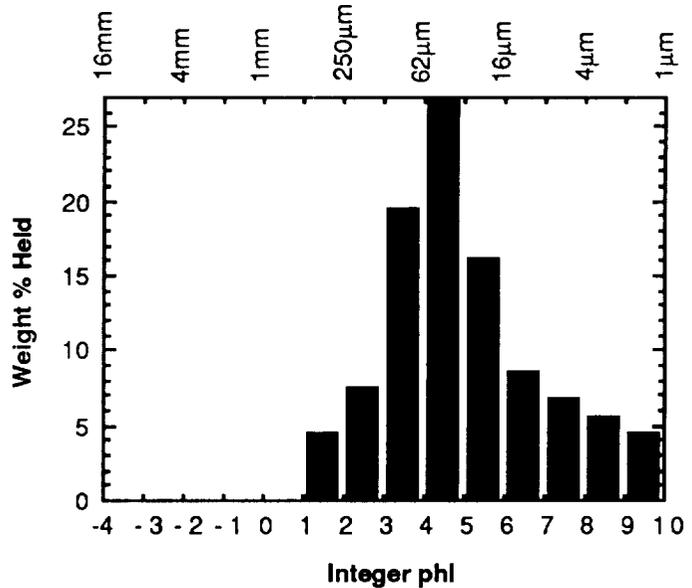
## GRAPHIC AND MOMENT MEASURES

Mean:	5.10
Median:	4.67
Mode:	4.50
Sorting:	2.07
Skewness:	0.30
Kurtosis:	1.23

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	2.11
16	3.32
25	3.78
50	4.67
75	6.13
84	7.31
95	9.17

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 74002

(subsample 74002,180) (Core; depth below surface, 11.5 - 12.0 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 74001/74002 was collected at the south rim of 120 meter Shorty crater, at Station 4. The cored material is unusually compact. The core contains orange and red colored soil with nearly vertical contacts. The site is near the low place in the crater rim crest. The fragment population is variable. Craters up to several meters in diameter are scattered near the sample site. The core is almost entirely without coarse fines.

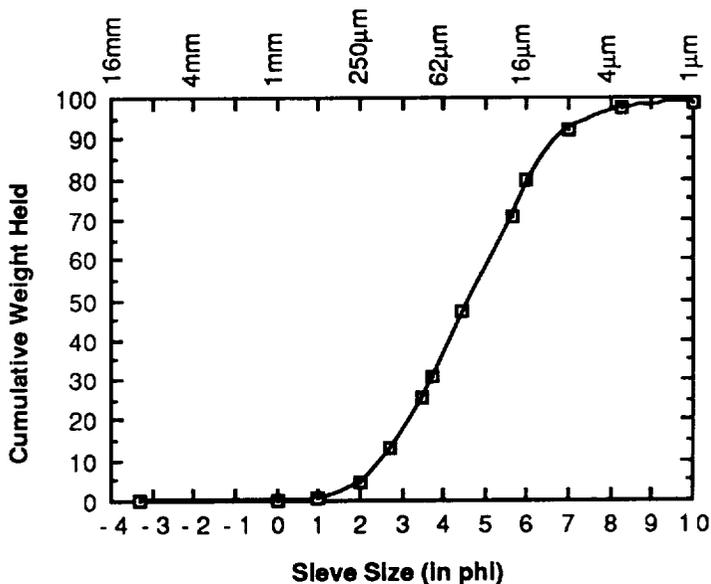
## MATURITY INDEX:

$I_s/FeO = 0.2$  (immature)

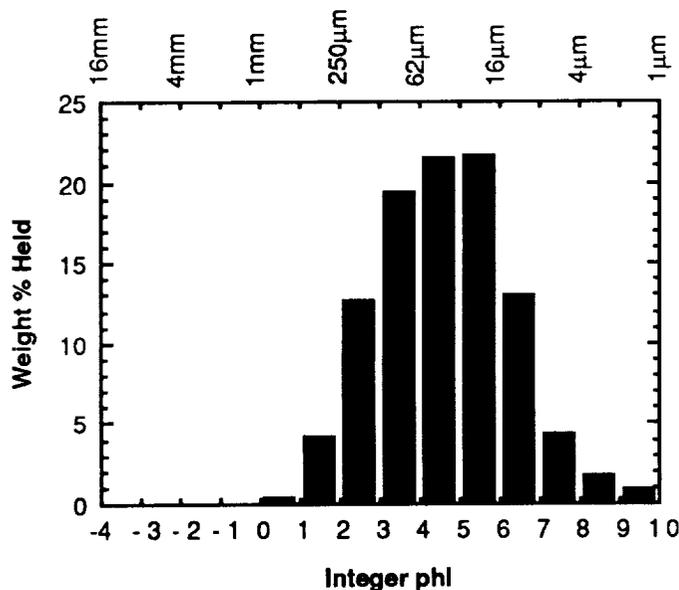
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	0.39
250.00	4.13
150.00	8.68
90.00	12.00
75.00	5.25
45.00	16.71
20.00	23.55
15.60	8.74
7.80	12.93
3.20	4.89
1.00	1.72

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	4.60
Median:	4.61
Mode:	5.50
Sorting:	1.66
Skewness:	0.04
Kurtosis:	0.96

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	2.07
16	2.93
25	3.46
50	4.61
75	5.82
84	6.26
95	7.57

# Soil: 74002

(subsample 74002,179) (Core; depth below surface, 5.0 - 5.5 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 74001/74002 was collected at the south rim of 120 meter Shorty crater, at Station 4. The cored material is unusually compact. The core contains orange and red colored soil with nearly vertical contacts. The site is near the low place in the crater rim crest. The fragment population is variable. Craters up to several meters in diameter are scattered near the sample site. The core is almost entirely without coarse fines.

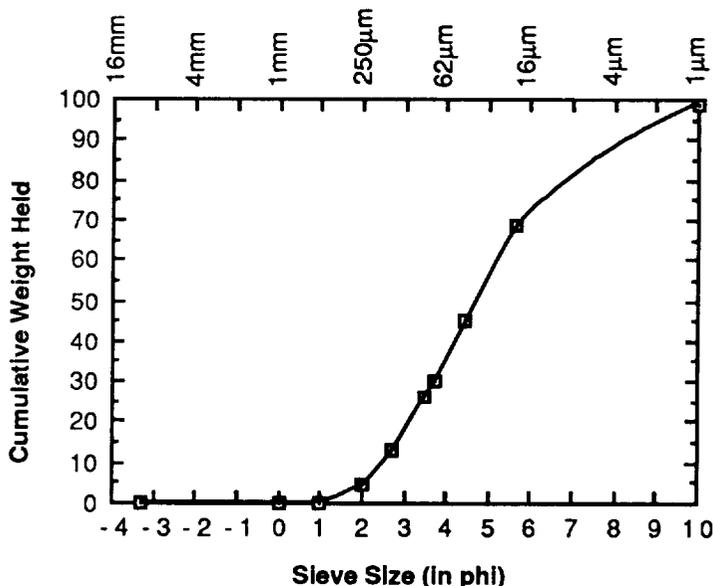
## MATURITY INDEX:

$I_s/FeO = 0.3$  (immature)

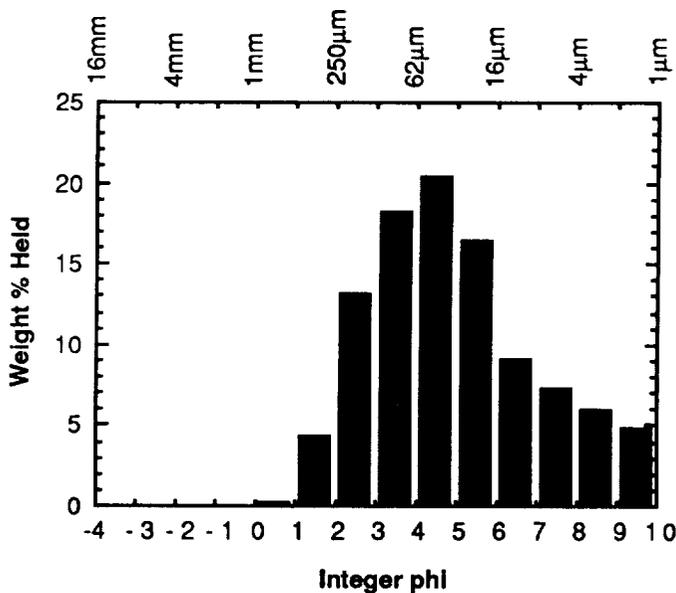
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	0.21
250.00	4.25
150.00	8.48
90.00	12.88
75.00	4.38
45.00	15.04
20.00	23.16
1.00	30.61

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	5.03
Median:	4.71
Mode:	4.50
Sorting:	2.21
Skewness:	0.24
Kurtosis:	1.02

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	2.08
16	2.92
25	3.43
50	4.71
75	6.31
84	7.45
95	9.22

# Soil: 74002

(subsample 74002,178) (Core; depth below surface, 3.0 - 3.5 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 74001/74002 was collected at the south rim of 120 meter Shorty crater, at Station 4. The cored material is unusually compact. The core contains orange and red colored soil with nearly vertical contacts. The site is near the low place in the crater rim crest. The fragment population is variable. Craters up to several meters in diameter are scattered near the sample site. The core is almost entirely without coarse fines.

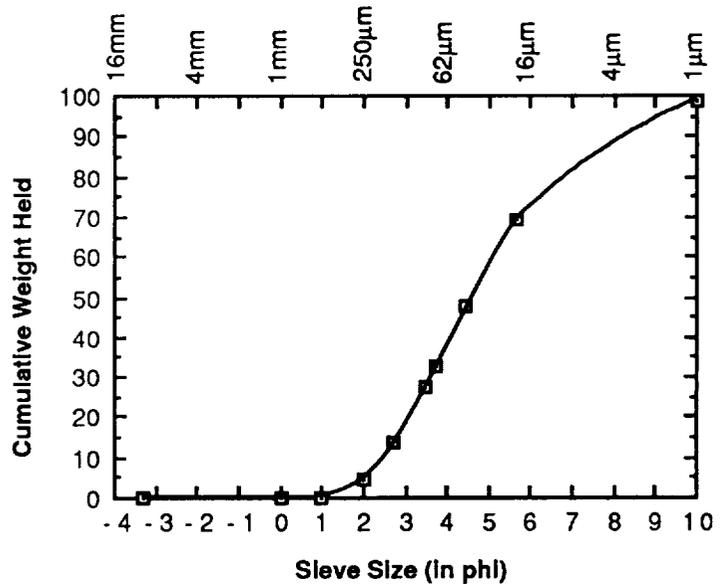
## MATURITY INDEX:

$I_s/FeO = 0.7$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	0.23
250.00	4.46
150.00	8.90
90.00	13.62
75.00	5.19
45.00	15.43
20.00	21.28
1.00	29.88

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



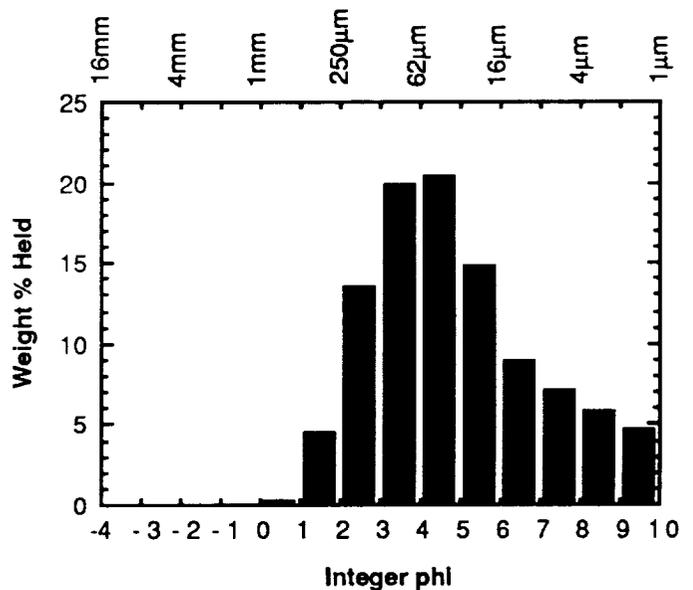
## GRAPHIC AND MOMENT MEASURES

Mean:	4.96
Median:	4.58
Mode:	4.50
Sorting:	2.21
Skewness:	0.27
Kurtosis:	1.02

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	2.05
16	2.88
25	3.36
50	4.58
75	6.25
84	7.40
95	9.20

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 74002

(subsample 74002,177) (Core; depth below surface, 1.5 - 2.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 74001/74002 was collected at the south rim of 120 meter Shorty crater, at Station 4. The cored material is unusually compact. The core contains orange and red colored soil with nearly vertical contacts. The site is near the low place in the crater rim crest. The fragment population is variable. Craters up to several meters in diameter are scattered near the sample site. The core is almost entirely without coarse fines.

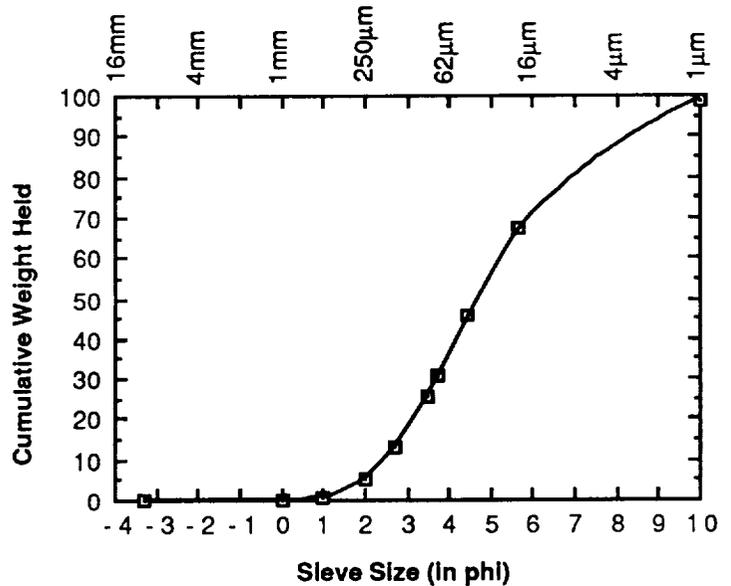
## MATURITY INDEX:

$I_g/FeO = 2.0$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	0.54
250.00	4.88
150.00	7.96
90.00	12.41
75.00	4.85
45.00	14.91
20.00	21.44
1.00	32.00

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



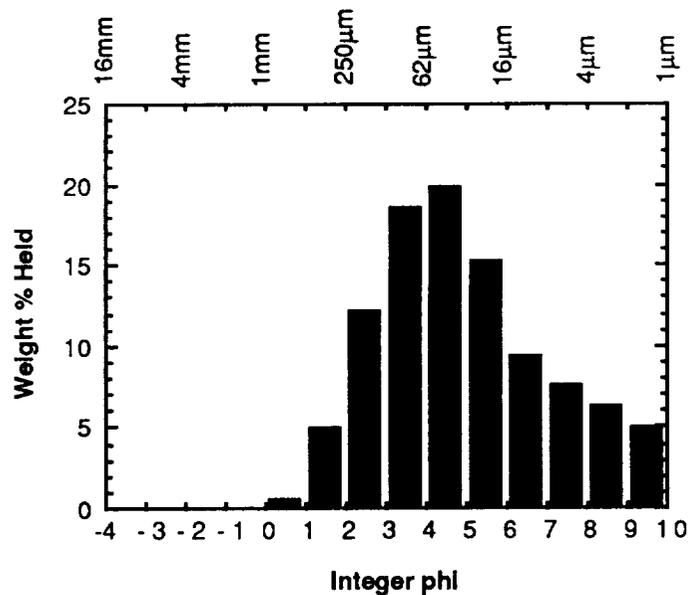
## GRAPHIC AND MOMENT MEASURES

Mean:	5.06
Median:	4.70
Mode:	4.50
Sorting:	2.27
Skewness:	0.24
Kurtosis:	1.00

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.93
16	2.91
25	3.43
50	4.70
75	6.43
84	7.55
95	9.26

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 74002

(subsample 74002,176) (Core; depth below surface, 0.5 - 1.0 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 74001/74002 was collected at the south rim of 120 meter Shorty crater, at Station 4. The cored material is unusually compact. The core contains orange and red colored soil with nearly vertical contacts. The site is near the low place in the crater rim crest. The fragment population is variable. Craters up to several meters in diameter are scattered near the sample site. The core is almost entirely without coarse fines.

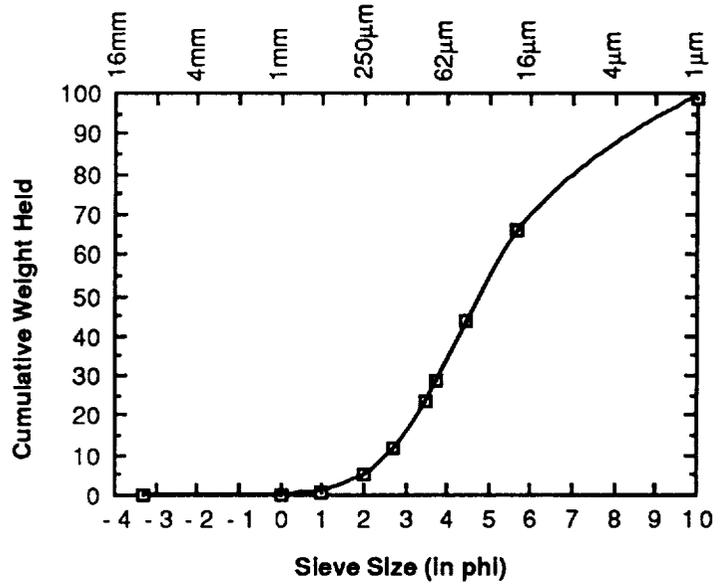
## MATURITY INDEX:

$I_s/FeO = 3.6$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	0.98
250.00	3.93
150.00	6.91
90.00	11.39
75.00	5.23
45.00	15.47
20.00	21.82
1.00	33.28

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



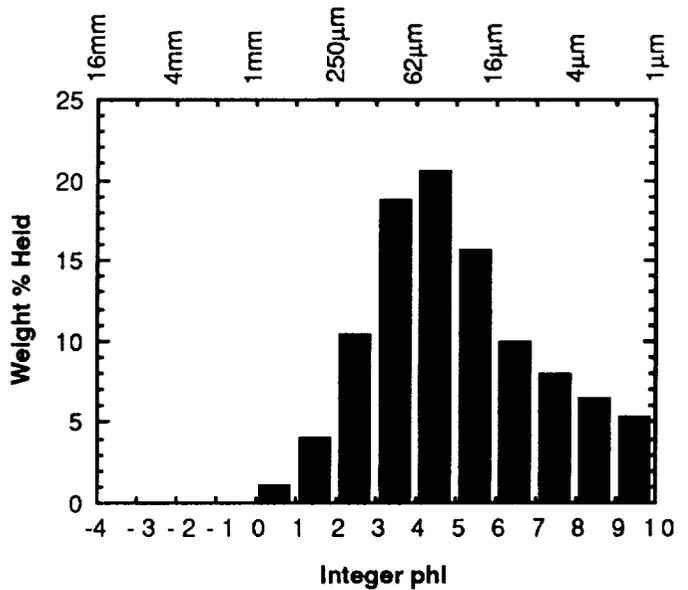
## GRAPHIC AND MOMENT MEASURES

Mean:	5.16
Median:	4.78
Mode:	4.50
Sorting:	2.25
Skewness:	0.24
Kurtosis:	1.00

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	2.02
16	3.05
25	3.57
50	4.78
75	6.54
84	7.64
95	9.28

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 74002

(subsample 74002,175) (Core; depth below surface, 0.0 - 0.1 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Drive tube 74001/74002 was collected at the south rim of 120 meter Shorty crater, at Station 4. The cored material is unusually compact. The core contains orange and red colored soil with nearly vertical contacts. The site is near the low place in the crater rim crest. The fragment population is variable. Craters up to several meters in diameter are scattered near the sample site. The core is almost entirely without coarse fines.

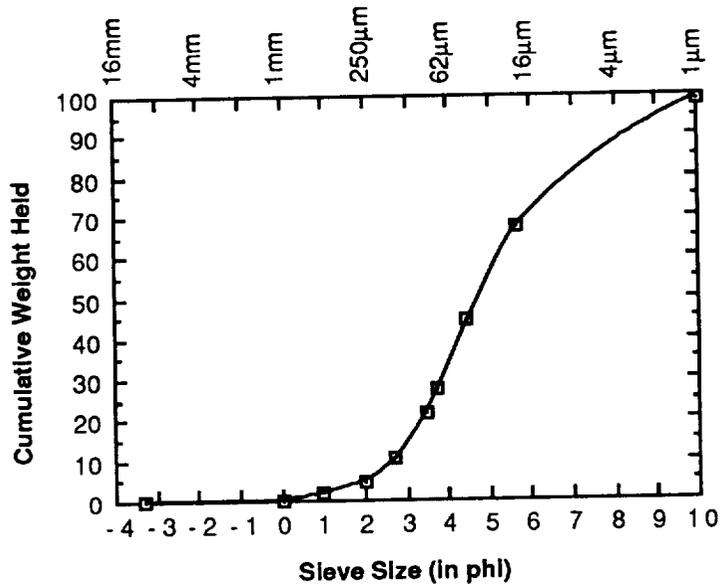
## MATURITY INDEX:

$I_s/FeO = 2.6$  (immature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	1.85
250.00	2.98
150.00	5.77
90.00	10.92
75.00	5.65
45.00	17.05
20.00	23.09
1.00	31.69

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



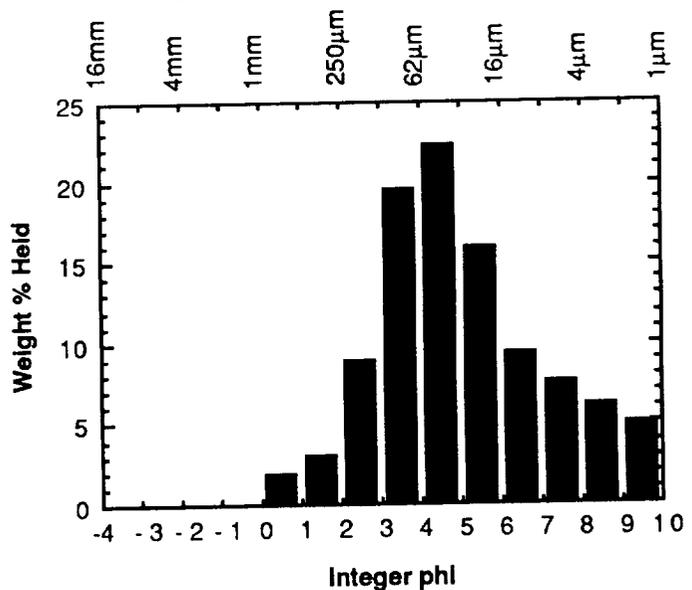
## GRAPHIC AND MOMENT MEASURES

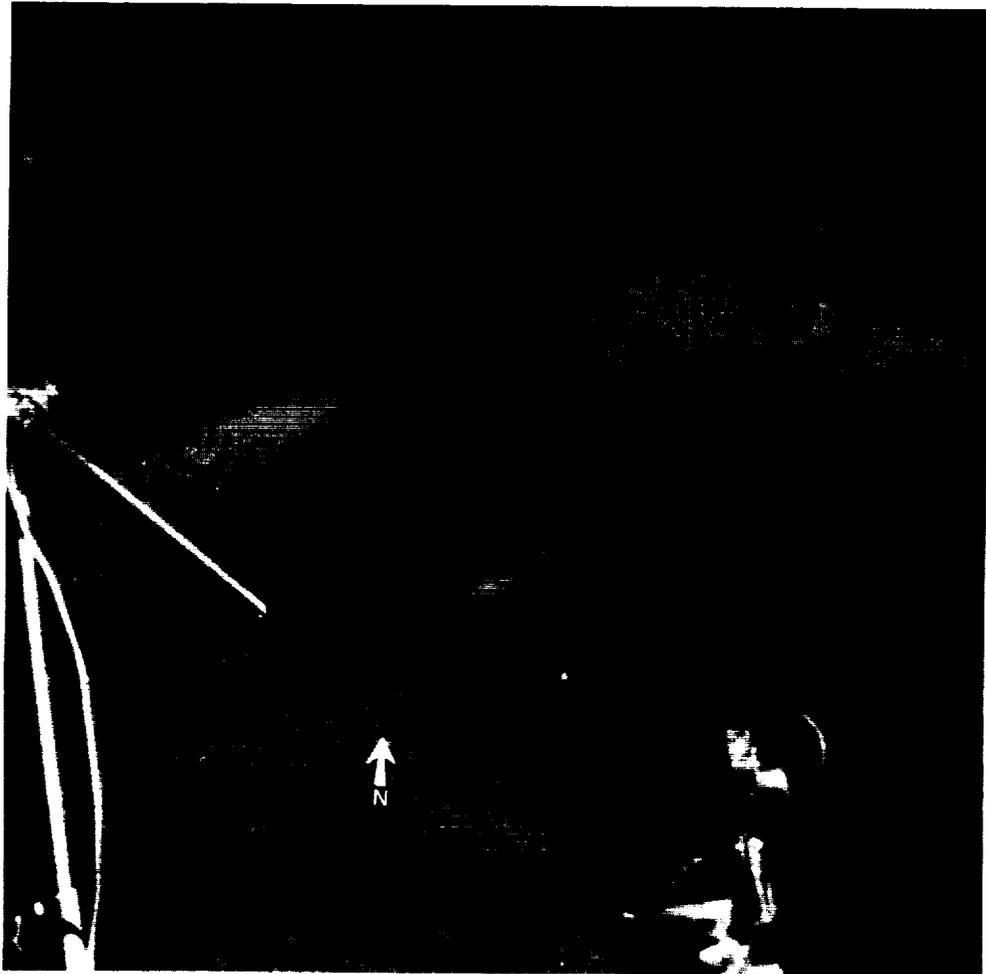
Mean:	5.14
Median:	4.74
Mode:	4.50
Sorting:	2.18
Skewness:	0.26
Kurtosis:	1.07

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	2.04
16	3.16
25	3.64
50	4.74
75	6.40
84	7.53
95	9.25

## SIZE DISTRIBUTION HISTOGRAM





74120 Sample Environment

AS17-133-20212

Sample near LRV in the  
near field of this picture.

**Soil: 74120**  
(subsample 74121,12)  
D.S. McKay PI

**LOCATION COMMENTS:**

This surface soil was collected from the LRV while travelling over light mantle deposits between stations 3 and 4. The site is undulating, yet regionally level with fragments >10 cm sparse. Craters <1 meter are abundant, but craters >1 meter are sparse.

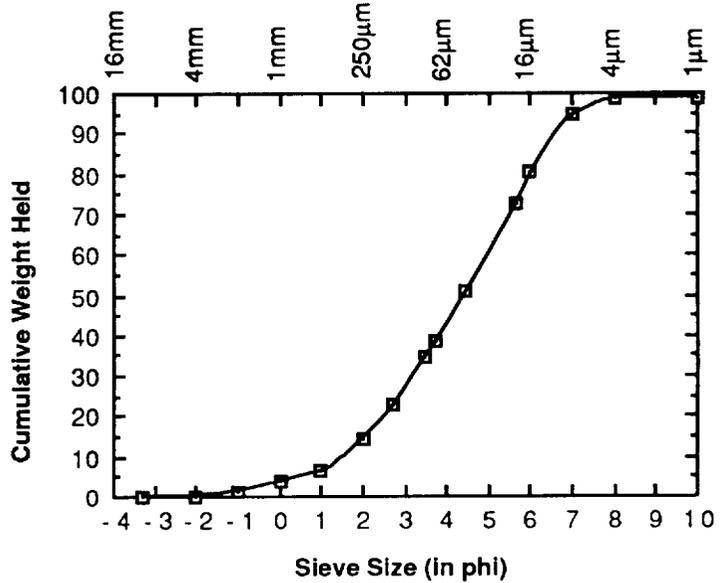
**MATURITY INDEX:**

$I_p/FeO = 88$  (mature)

**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	0.15
2000.00	1.03
1000.00	2.51
500.00	2.53
250.00	8.08
150.00	8.64
90.00	11.50
75.00	4.04
45.00	12.52
20.00	21.38
15.60	7.84
7.80	14.29
3.90	4.02
1.00	0.46

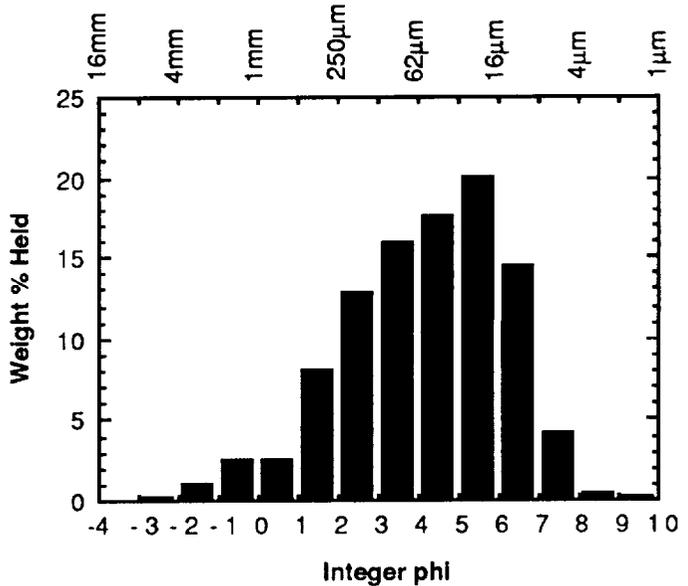
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

Mean:	4.26
Median:	4.42
Mode:	5.50
Sorting:	2.01
Skewness:	-0.15
Kurtosis:	0.93

**SIZE DISTRIBUTION HISTOGRAM**



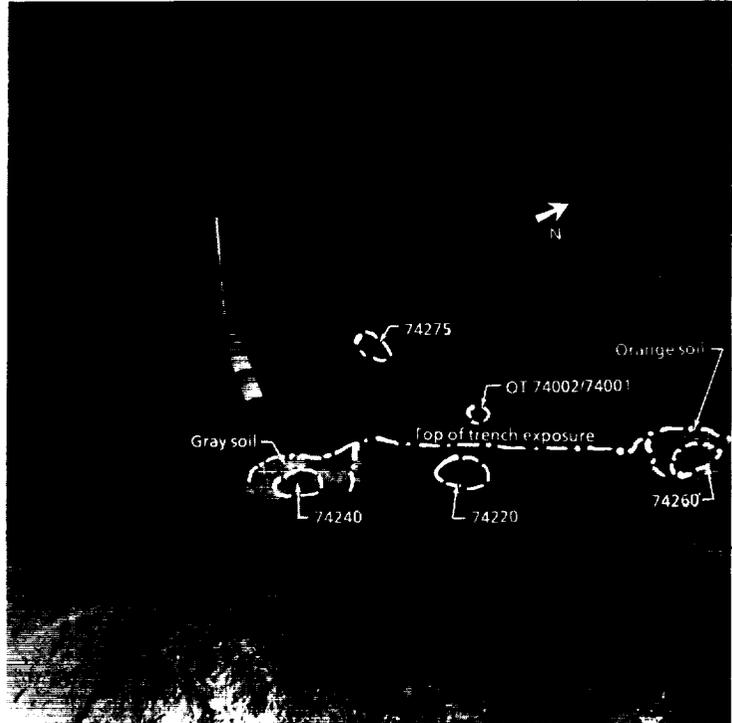
**MOMENT MEASURE DATA**

Wt % held	Ø size
5	0.52
16	2.17
25	2.87
50	4.42
75	5.76
84	6.21
95	7.10

74220 Sample Environment

AS17-137-20990

Pre-sampling.



74220 Sample Environment

AS17-137-20986

Pre-sampling close up.

Soil: 74220  
(subsample 74221,6)  
D.S. McKay PI

LOCATION COMMENTS:

Considered to be a clod of friable material taken 6-8 cm deep in a trench from Station 4, on the rim of 120 meter Shorty crater. The site is near the low place in the crater rim crest. The fragments population is highly variable, craters up to several meters in diameter are common. The particles larger than 1mm are mostly friable clumps that disaggregated during sieving. Any discontinuity is probably due to the fact that the sizes <1 mm were sieved and the sizes >1mm were hand picked.

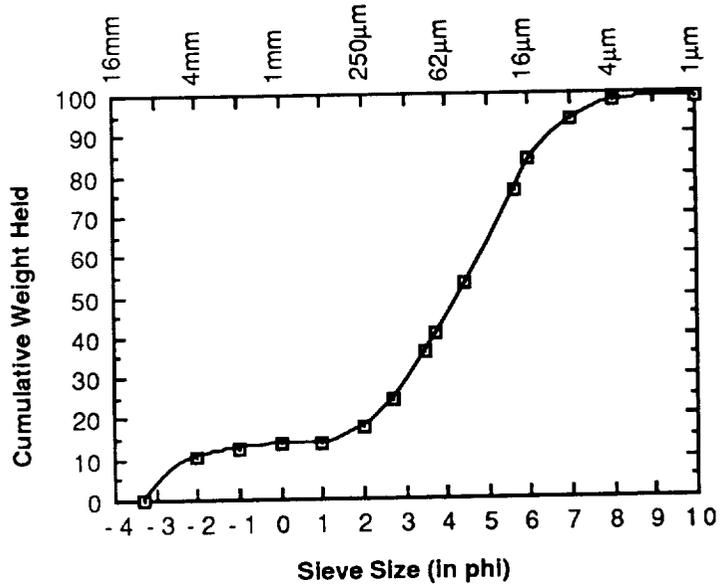
MATURITY INDEX:

$I_s/FeO = 1.0$  (immature)

TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	10.78
2000.00	1.87
1000.00	0.88
500.00	0.00
250.00	4.23
150.00	6.66
90.00	11.45
75.00	4.44
45.00	12.76
20.00	22.71
15.60	7.94
7.80	9.64
3.90	4.56
1.00	1.07

CUMULATIVE WEIGHT DISTRIBUTION CURVE



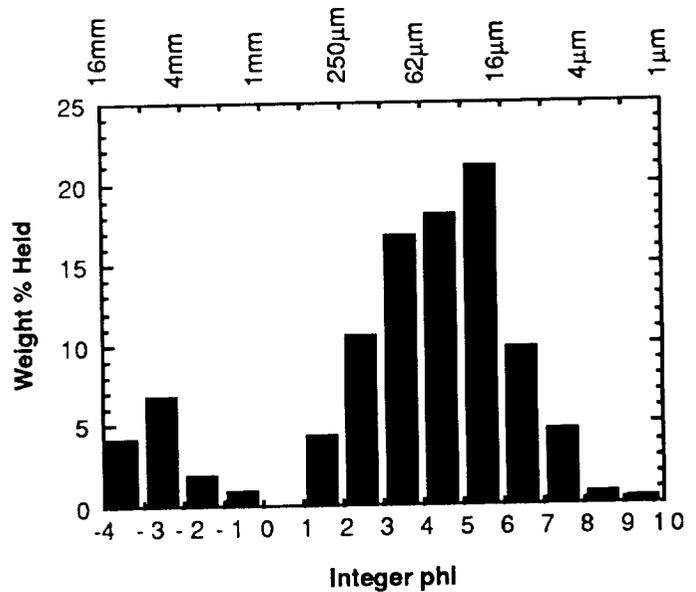
GRAPHIC AND MOMENT MEASURES

Mean:	4.00
Median:	4.30
Mode:	5.50
Sorting:	2.66
Skewness:	-0.32
Kurtosis:	1.51

MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-3.07
16	1.67
25	2.79
50	4.30
75	5.61
84	6.02
95	7.30

SIZE DISTRIBUTION HISTOGRAM



**Soil: 74220**  
(subsample 74221,82)  
D.S. McKay PI

**LOCATION COMMENTS:**

Considered to be a clod of friable material taken 6-8 cm deep in a trench from Station 4, on the rim of 120 meter Shorty crater. The site is near the low place in the crater rim crest. The fragments population is highly variable, craters up to several meters in diameter are common. The particles larger than 1mm are mostly friable clumps that disaggregated during sieving. Any discontinuity is probably due to the fact that the sizes <1 mm were sieved and the sizes >1mm were hand picked.

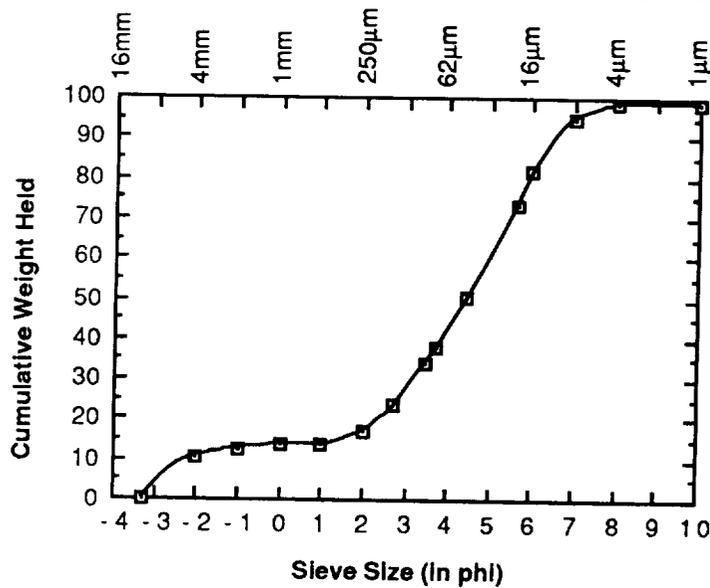
**MATURITY INDEX:**

$I_g/FeO = 1.0$  (immature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	10.78
2000.00	1.87
1000.00	0.88
500.00	0.11
250.00	3.52
150.00	6.53
90.00	10.43
75.00	3.81
45.00	12.70
20.00	22.62
15.60	8.66
7.80	13.16
3.90	3.50
1.00	0.41

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



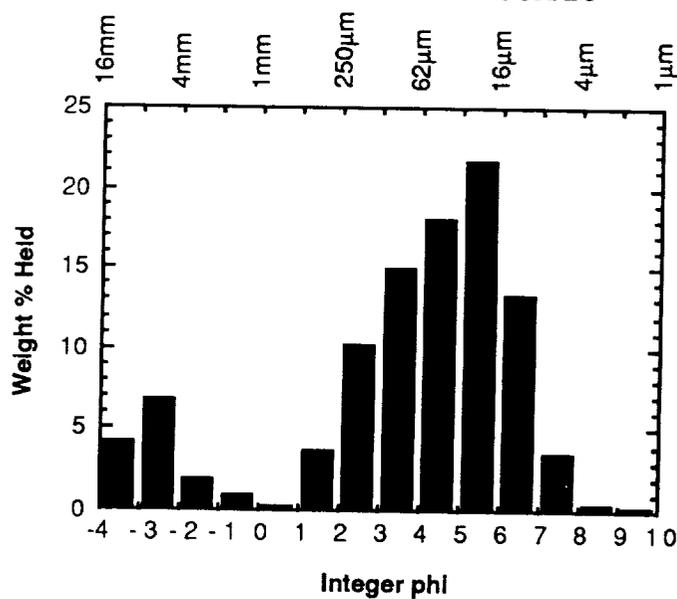
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.10
Median:	4.44
Mode:	5.50
Sorting:	2.62
Skewness:	-0.36
Kurtosis:	1.43

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-3.07
16	1.74
25	2.84
50	4.44
75	5.72
84	6.12
95	6.98

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 74220**  
 (subsample 74221,84)  
 E.A. King PI

**LOCATION COMMENTS:**

Considered to be a clod of friable material taken 6-8 cm deep in a trench from Station 4, on the rim of 120 meter Shorty crater. The site is near the low place in the crater rim crest. The fragments population is highly variable, craters up to several meters in diameter are common. The particles larger than 1mm are mostly friable clumps that disaggregated during sieving. Any discontinuity is probably due to the fact that the sizes <1 mm were sieved and the sizes >1mm were hand picked.

**MATURITY INDEX:**

$I_g/FeO = 1.0$  (immature)

**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	10.78
2000.00	1.87
1000.00	0.88
841.00	0.20
420.00	1.89
250.00	3.18
177.00	4.23
150.00	2.70
125.00	4.08
105.00	4.08
74.00	7.81
53.00	6.73
44.00	5.27
37.00	3.03
30.00	12.76
20.00	9.14
10.00	11.21
1.00	9.15

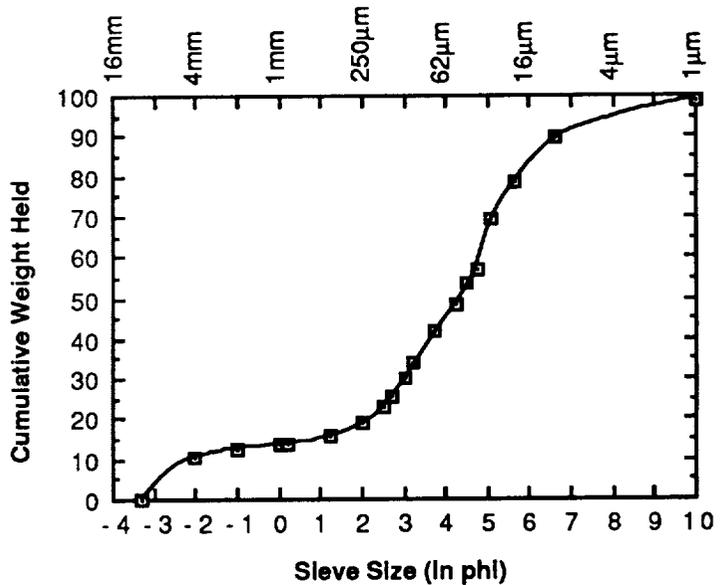
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.92
Median:	4.32
Mode:	4.50
Sorting:	2.88
Skewness:	-0.28
Kurtosis:	1.71

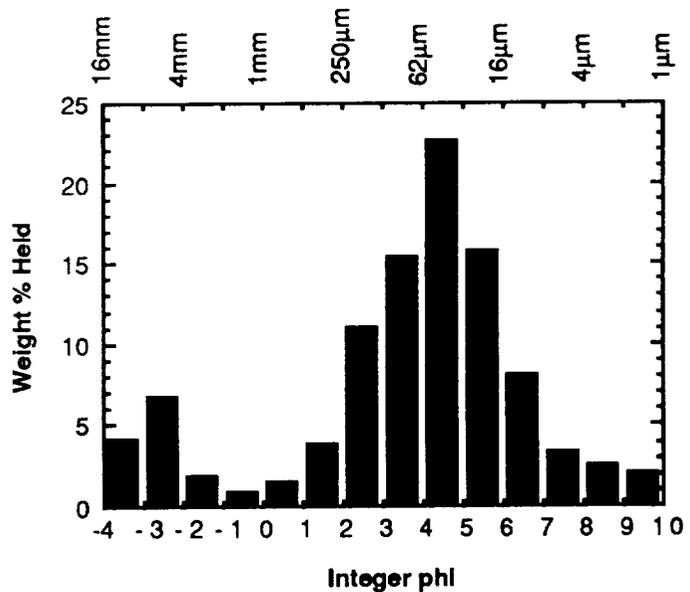
**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-3.07
16	1.38
25	2.68
50	4.32
75	5.38
84	6.05
95	8.22

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



Soil: 74220  
(subsample 74221,121)  
W.V. Engelhardt PI

LOCATION COMMENTS:

Considered to be a clod of friable material taken 6-8 cm deep in a trench from Station 4, on the rim of 120 meter Shorty crater. The site is near the low place in the crater rim crest. The fragments population is highly variable, craters up to several meters in diameter are common. The particles larger than 1 mm are mostly friable clumps that disaggregated during sieving. Any discontinuity is probably due to the fact that the grains <1mm were sieved and the fragments >1mm were hand picked.

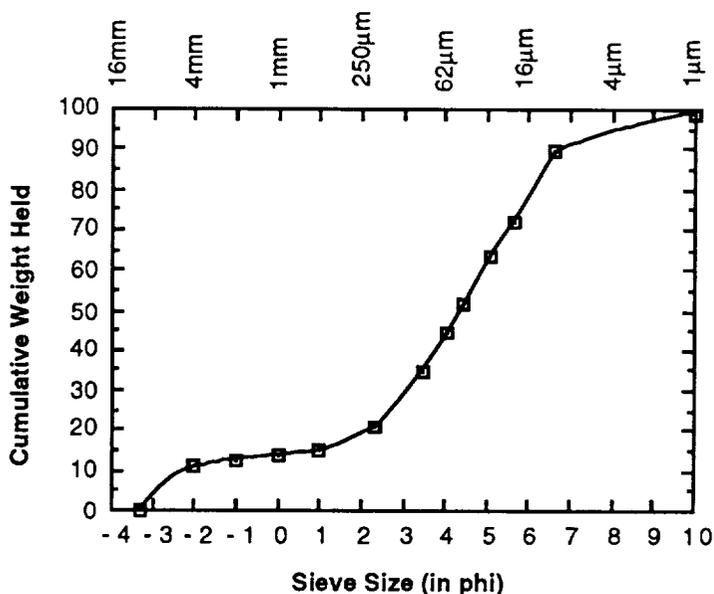
MATURITY INDEX:

$I_3/FeO = 1.0$  (immature)

TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	10.8
2000	1.87
1000	0.88
500	1.28
200	6.08
90	13.96
60	9.67
45	7.19
30	11.56
20	8.82
10	17.38
1	9.5

CUMULATIVE WEIGHT DISTRIBUTION CURVE



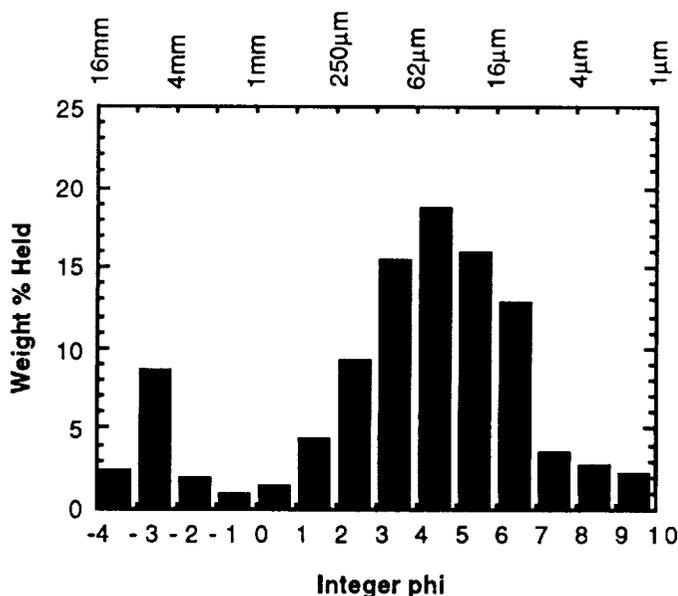
GRAPHIC AND MOMENT MEASURES

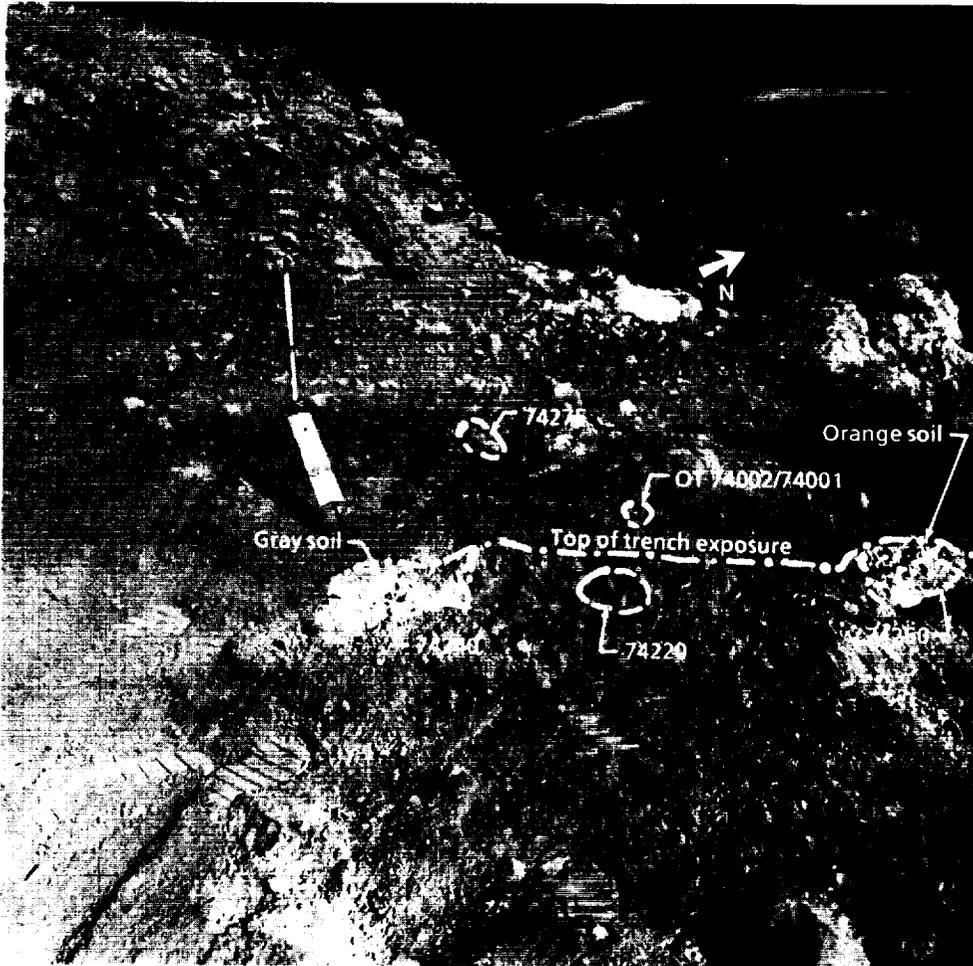
Mean:	4.03
Median:	4.38
Mode:	4.5
Sorting:	2.89
Skewness:	-0.25
Kurtosis:	1.47

MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.68
16	1.4
25	2.76
50	4.38
75	5.82
84	6.3
95	8.31

SIZE DISTRIBUTION HISTOGRAM





74240 Sample Environment

AS17-137-20990

Pre-sampling.

Soil: 74240  
(subsample 74241,34)  
W.V. Engelhardt PI

LOCATION COMMENTS:

This is gray soil that was bordering the meter wide band of reddish soil (74240 is southwest of the colored soil and 74260 is to the northeast) at Station 4 on the rim of Shorty crater. The site is near the low place in the crater rim crest. The fragment population is highly variable, and craters up to several meters in diameter are common.

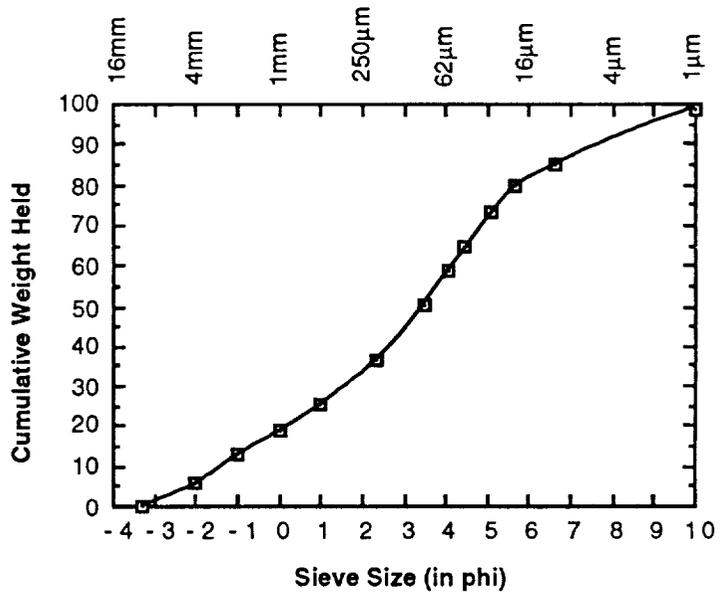
MATURITY INDEX:

$I_s/FeO = 5.1$  (immature)

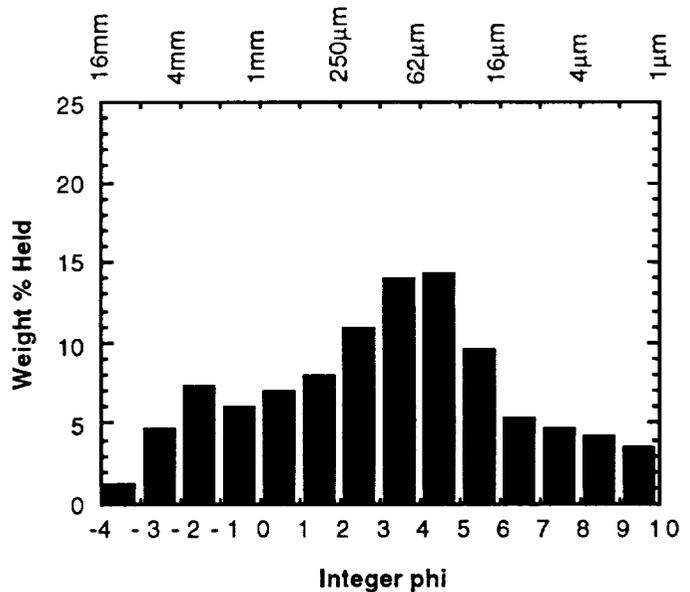
TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	5.72
2000	7.21
1000	5.87
500	6.89
200	10.82
90	14.02
60	8.41
45	5.61
30	8.57
20	6.41
10	5.61
1	13.86

CUMULATIVE WEIGHT DISTRIBUTION CURVE



SIZE DISTRIBUTION HISTOGRAM



GRAPHIC AND MOMENT MEASURES

Mean:	3.13
Median:	3.43
Mode:	4.5
Sorting:	3.39
Skewness:	-0.07
Kurtosis:	1.05

MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.14
16	-0.48
25	0.91
50	3.43
75	5.21
84	6.42
95	8.88

**Soil: 74240**  
(subsample 74241,61)  
D.S. McKay PI

**LOCATION COMMENTS:**

This is gray soil that was bordering the meter wide band of reddish soil (74240 is southwest of the colored soil and 74260 is to the northeast) at Station 4 on the rim of Shorty crater. The site is near the low place in the crater rim crest. The fragment population is highly variable, and craters up to several meters in diameter are common.

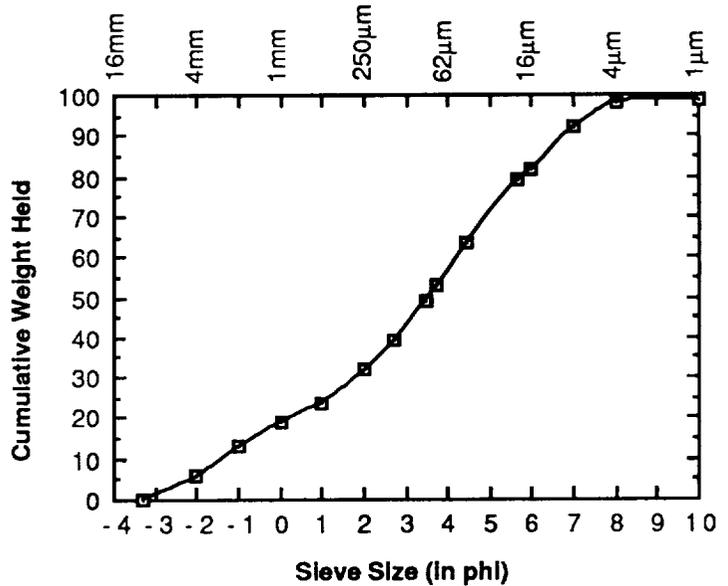
**MATURITY INDEX:**

$I_s/FeO = 5.1$  (immature)

**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	5.73
2000.00	7.22
1000.00	5.87
500.00	4.90
250.00	8.02
150.00	7.34
90.00	10.18
75.00	3.63
45.00	10.78
20.00	15.57
15.60	2.57
7.80	10.32
3.90	6.00
1.00	0.87

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



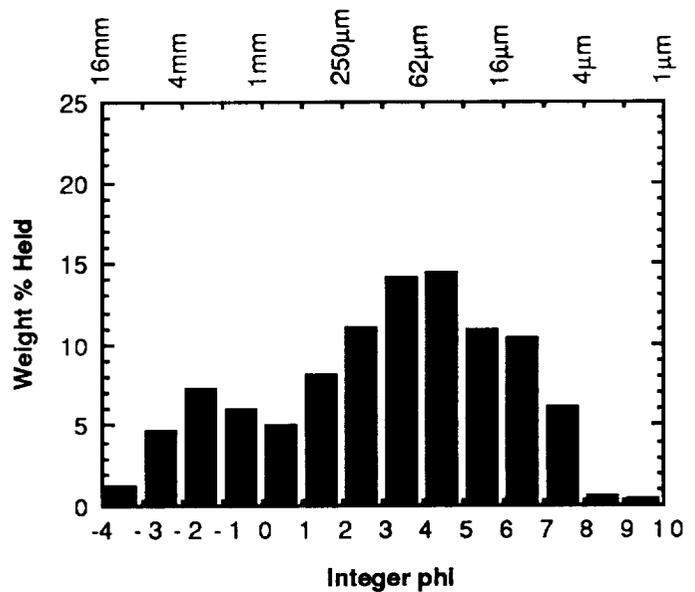
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.09
Median:	3.53
Mode:	4.50
Sorting:	3.14
Skewness:	-0.19
Kurtosis:	0.96

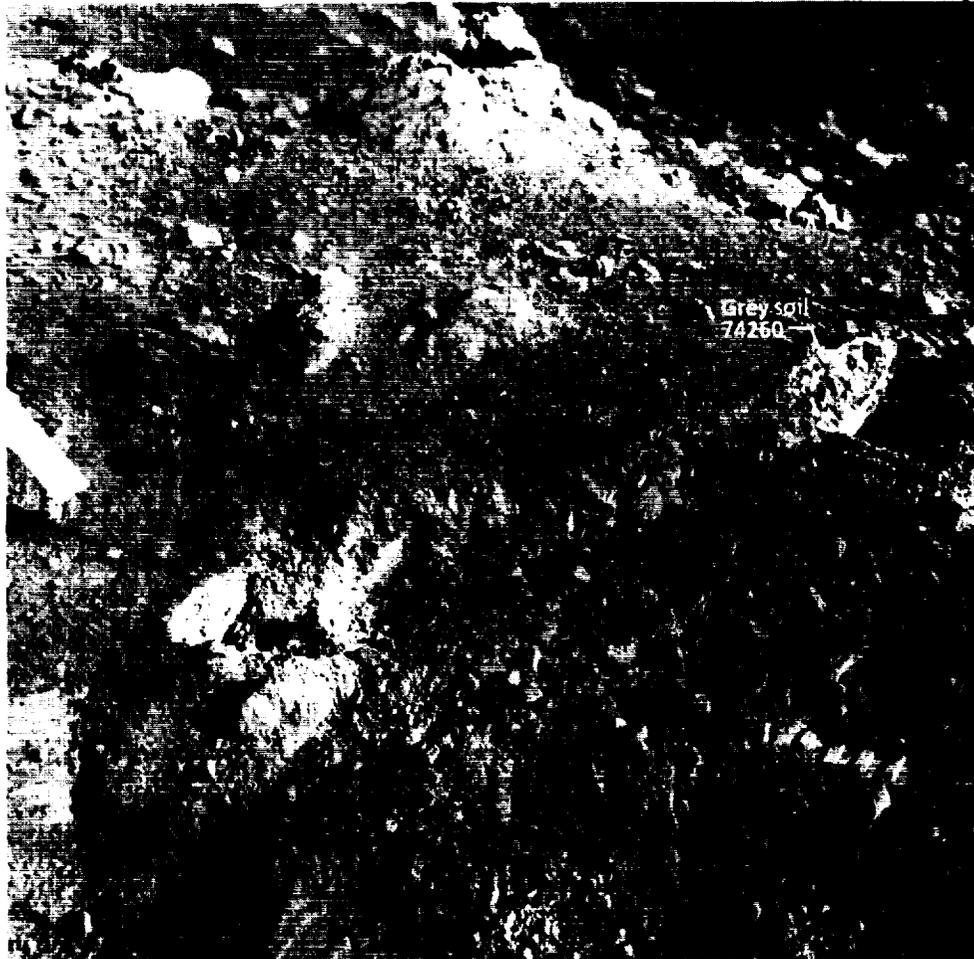
**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-2.14
16	-0.50
25	1.20
50	3.53
75	5.29
84	6.25
95	7.41

**SIZE DISTRIBUTION HISTOGRAM**



ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



74260 Sample Environment

AS17-137-20986

After digging trench, before  
sampling.

**Soil: 74260**  
(subsample 74261,5)  
D.S. McKay PI

**LOCATION COMMENTS:**

This is gray soil that was bordering the meter wide band of reddish soil (74240 is southwest of the colored soil and 74260 is to the northeast) at Station 4 on the rim of Shorty crater. The site is near the low place in the crater rim crest. The fragment population is highly variable, and craters up to several meters in diameter are common.

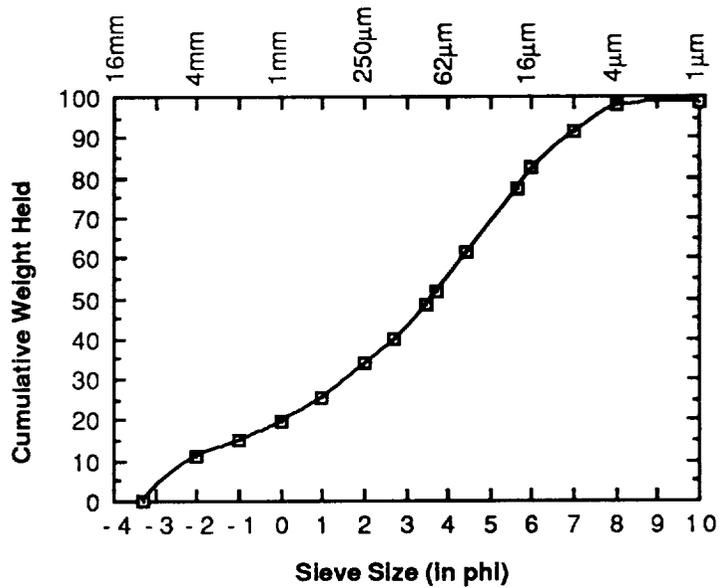
**MATURITY INDEX:**

$I_g/FeO = 5$  (immature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	11.12
2000.00	3.64
1000.00	4.79
500.00	6.00
250.00	8.12
150.00	6.10
90.00	8.39
75.00	3.62
45.00	9.82
20.00	15.59
15.60	5.06
7.80	9.22
3.90	6.37
1.00	1.16

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



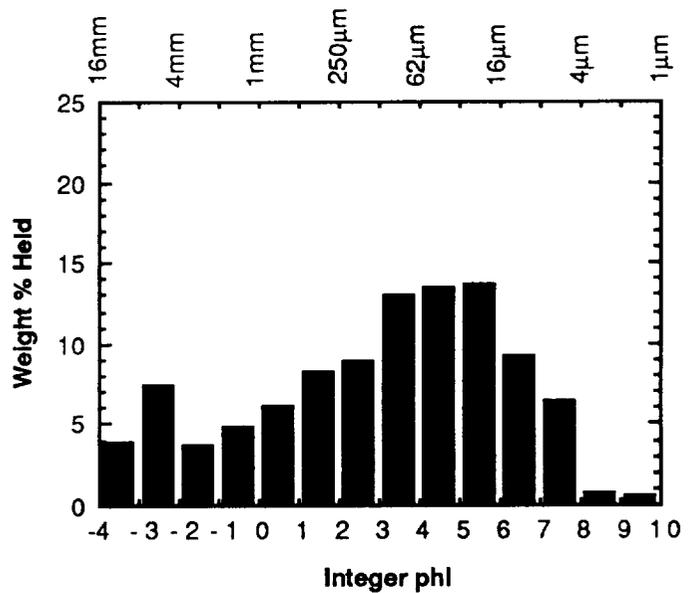
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.02
Median:	3.61
Mode:	5.50
Sorting:	3.30
Skewness:	-0.26
Kurtosis:	0.94

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.93
16	-0.71
25	0.92
50	3.61
75	5.48
84	6.16
95	7.49

**SIZE DISTRIBUTION HISTOGRAM**



Soil: 74260  
(subsample 74261,9)  
D.S. McKay PI

**LOCATION COMMENTS:**

This is gray soil that was bordering the meter wide band of reddish soil (74240 is southwest of the colored soil and 74260 is to the northeast) at Station 4 on the rim of Shorty crater. The site is near the low place in the crater rim crest. The fragment population is highly variable, and craters up to several meters in diameter are common.

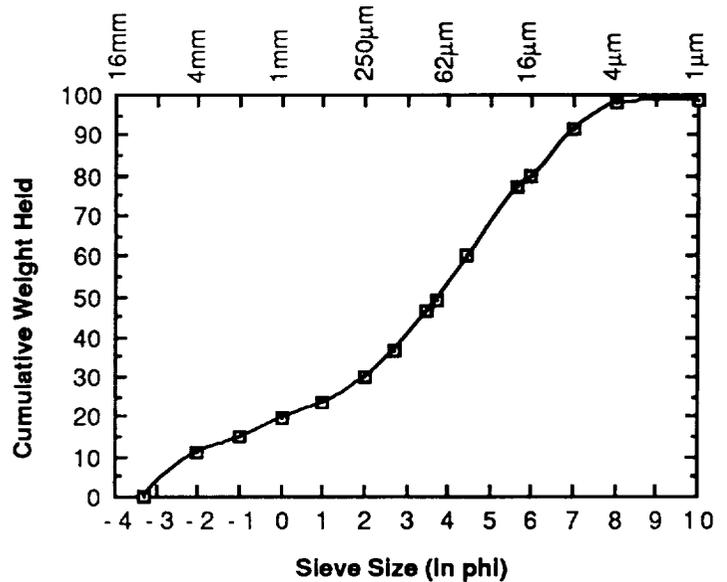
**MATURITY INDEX:**

$I_s/FeO = 5$  (immature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	11.12
2000.00	3.64
1000.00	4.79
500.00	3.82
250.00	6.76
150.00	6.73
90.00	9.39
75.00	2.91
45.00	10.85
20.00	17.31
15.60	2.35
7.80	11.97
3.90	6.35
1.00	1.01

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



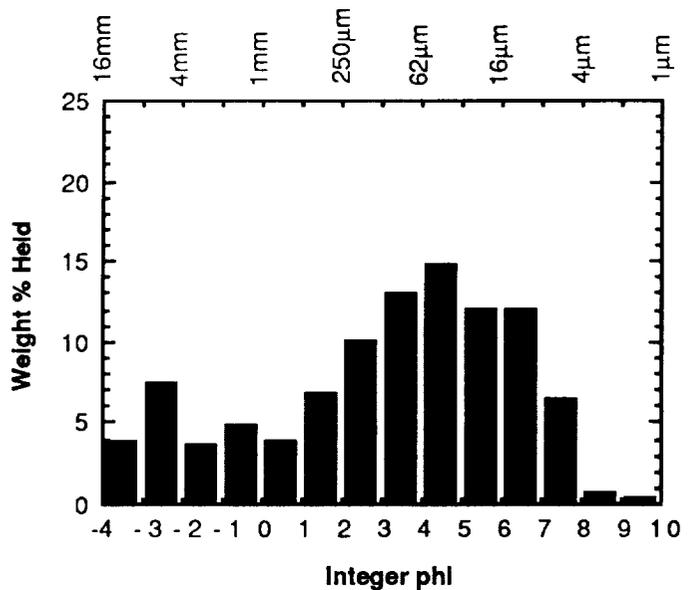
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.16
Median:	3.79
Mode:	4.50
Sorting:	3.36
Skewness:	-0.28
Kurtosis:	1.02

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.93
16	-0.73
25	1.29
50	3.79
75	5.48
84	6.40
95	7.45

**SIZE DISTRIBUTION HISTOGRAM**

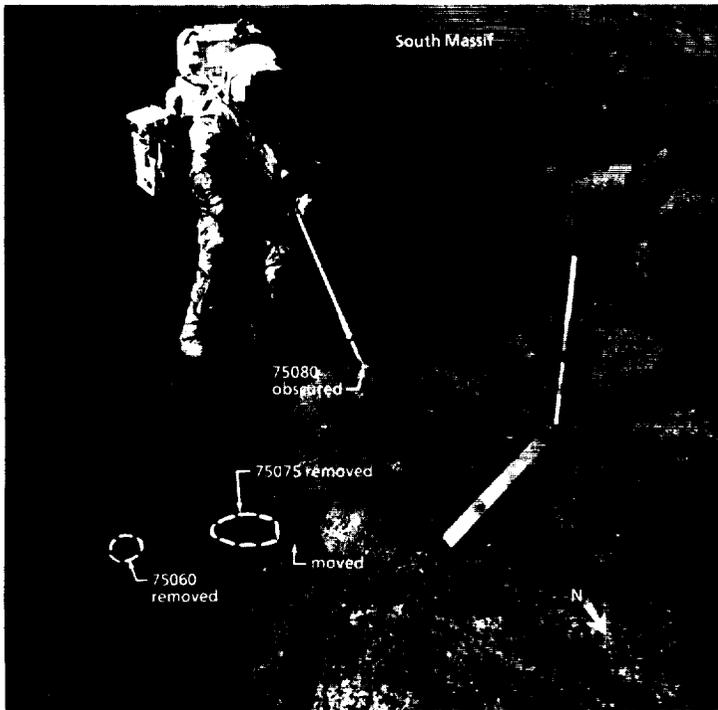
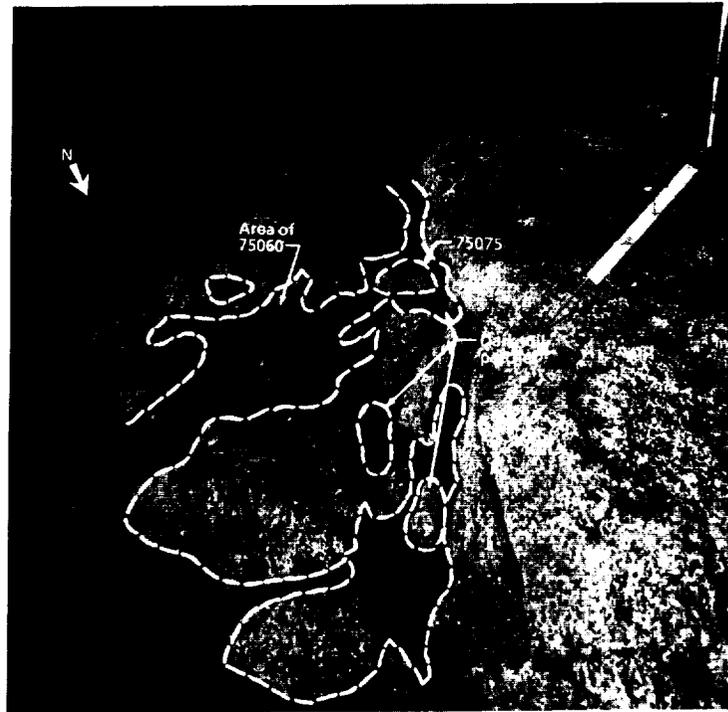


ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH

75060 Sample Environment

AS17-145-22155

Pre-sampling.



75060 Sample Environment

AS17-145-22157

Post-sampling.

**Soil: 75060**  
(subsample 75061,2)  
D.S. McKay PI

**LOCATION COMMENTS:**

This is a mantling soil that was collected from a 1 cm depression on a 3 meter boulder, at Station 5, on the southwest rim of Camelot crater. The site has an undulating slope with cobbles and boulders covering 30% of the surface. The soil contains two rock chips, 75065-66.

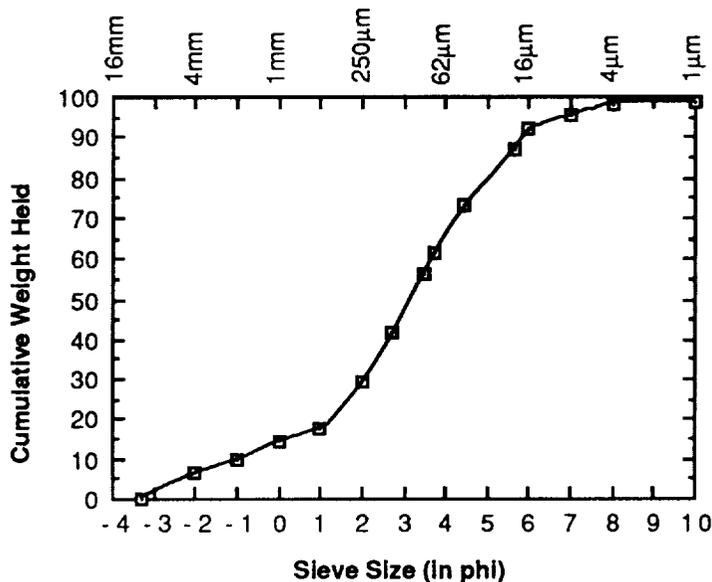
**MATURITY INDEX:**

$I_s/FeO = 33$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	6.25
2000.00	3.38
1000.00	4.57
500.00	3.29
250.00	11.63
150.00	12.64
90.00	14.67
75.00	4.89
45.00	11.95
20.00	13.52
15.60	5.33
7.80	3.24
3.90	2.90
1.00	0.75

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



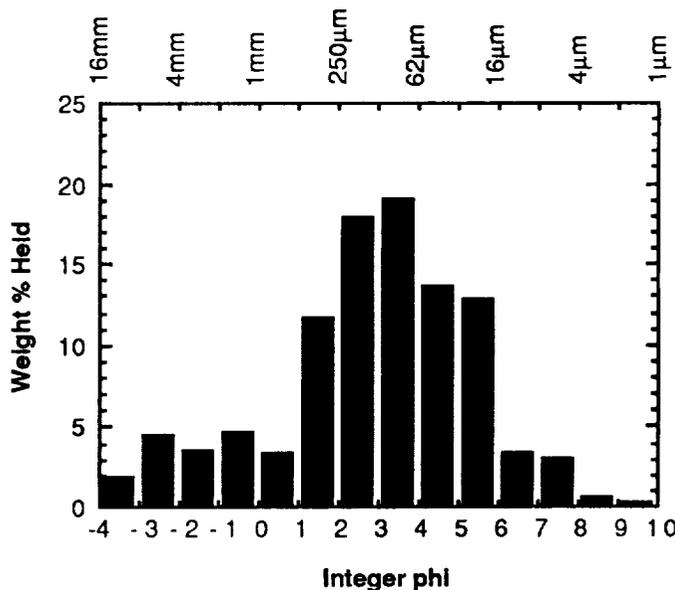
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.04
Median:	3.15
Mode:	3.50
Sorting:	2.61
Skewness:	-0.13
Kurtosis:	1.30

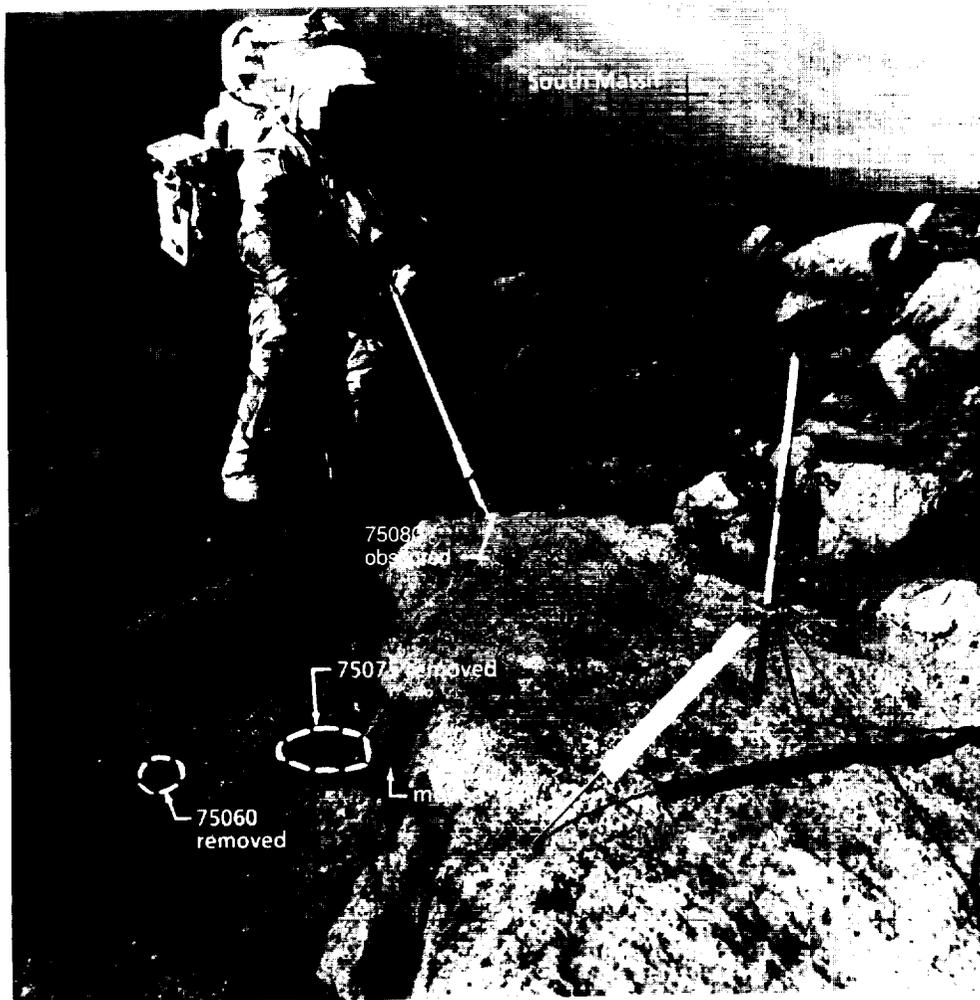
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.32
16	0.55
25	1.70
50	3.15
75	4.61
84	5.42
95	6.89

**SIZE DISTRIBUTION HISTOGRAM**



ORIGINAL SOURCE  
BLACK AND WHITE PHOTOGRAPH



75080 Sample Environment

AS17-145-22157

During sampling.

**Soil: 75080**  
 (subsample 75081,1)  
 D.S. McKay PI

**LOCATION COMMENTS:**

This is a surface soil sample from a site on the regolith surface a few meters from sample 75060 at Station 5 on the southwest rim of Camelot crater. The sample area is undulating with cobbles and boulders covering 30% of the surface.

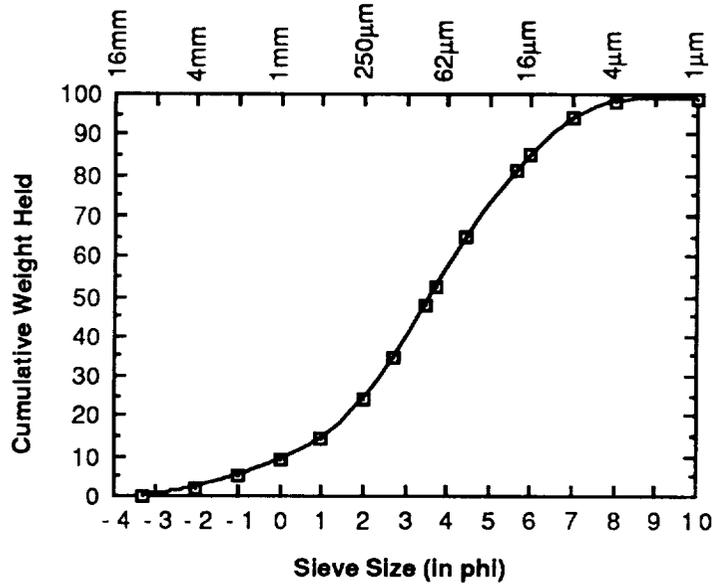
**MATURITY INDEX:**

$I_g/FeO = 40$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.25
2000.00	2.98
1000.00	3.76
500.00	5.51
250.00	9.80
150.00	10.57
90.00	13.10
75.00	4.51
45.00	12.34
20.00	15.94
15.60	4.10
7.80	8.96
3.90	4.20
1.00	0.98

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



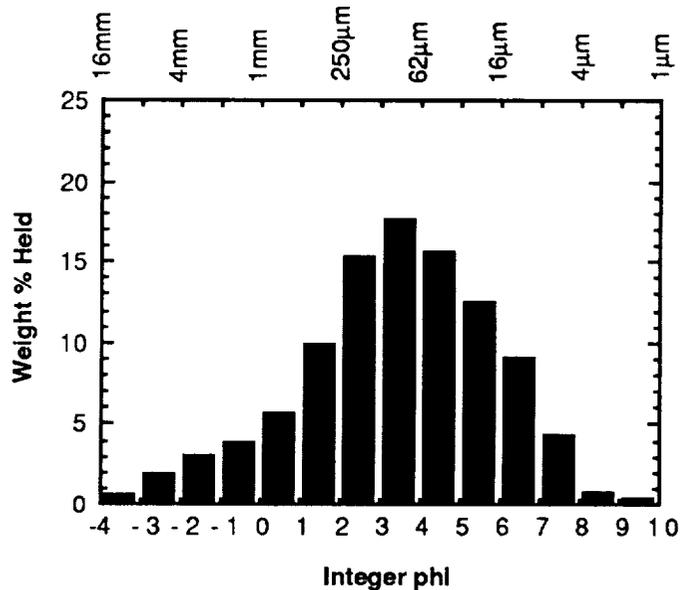
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.57
Median:	3.59
Mode:	3.50
Sorting:	2.44
Skewness:	-0.07
Kurtosis:	1.09

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.07
16	1.20
25	2.06
50	3.59
75	5.19
84	5.92
95	7.23

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 75080**  
 (subsample 75081,34)  
 H.R. von Gunten PI

**LOCATION COMMENTS:**

This is a surface soil sample from a site on the regolith surface a few meters from sample 75060 at Station 5 on the southwest rim of Camelot crater. The sample area is undulating with cobbles and boulders covering 30% of the surface.

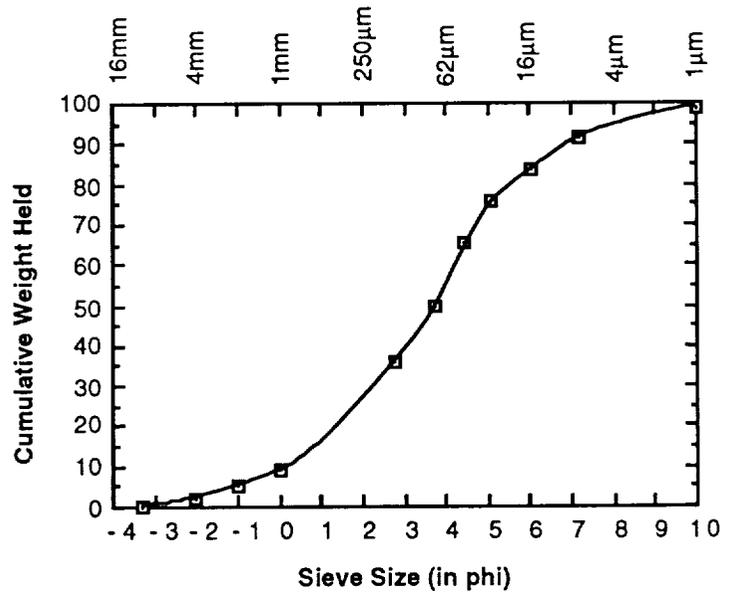
**MATURITY INDEX:**

$I_s/FeO = 40$  (submature)

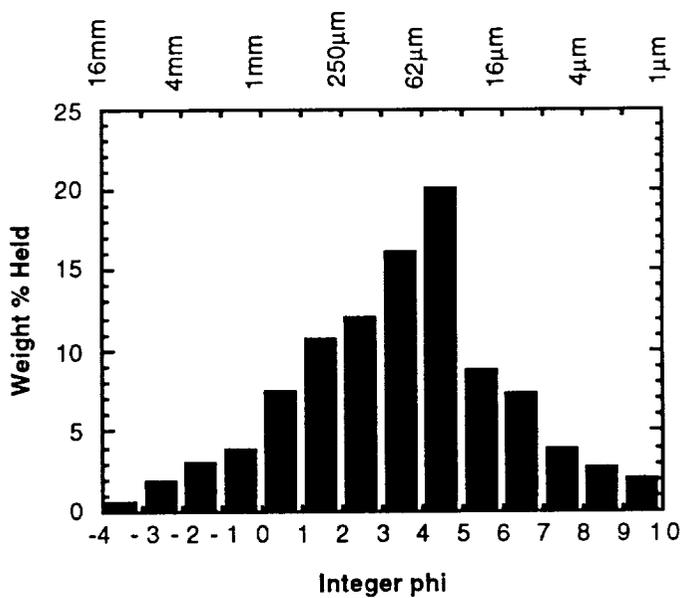
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	2.25
2000	2.98
1000	3.76
149	26.7
74	14.11
45	15.34
30	10.44
15	8.31
7	7.6
1	7.51

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.62
Median:	3.77
Mode:	4.5
Sorting:	2.68
Skewness:	-0.06
Kurtosis:	1.21

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.07
16	1.01
25	1.85
50	3.77
75	5.01
84	6.07
95	8.25



**Soil: 75080**  
 (subsample 75081,36)  
 D.S. McKay PI

**LOCATION COMMENTS:**

This is a surface soil sample from a site on the regolith surface a few meters from sample 75060 at Station 5 on the southwest rim of Camelot crater. The sample area is undulating with cobbles and boulders covering 30% of the surface.

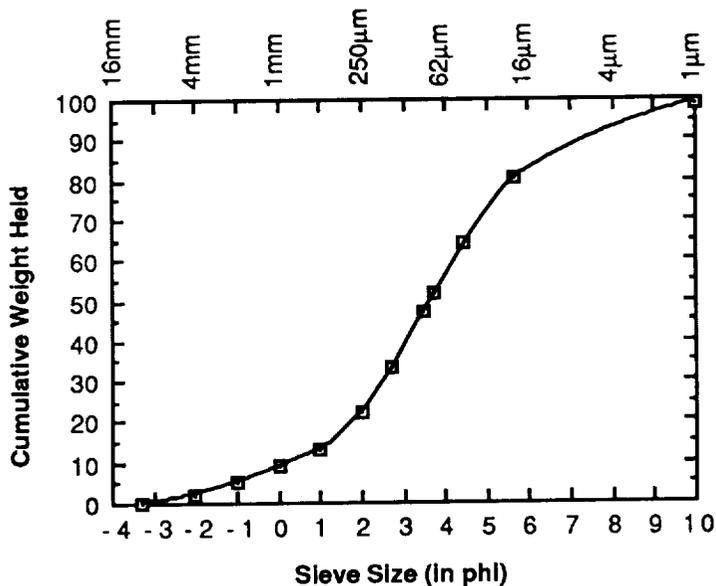
**MATURITY INDEX:**

$I_p/FeO = 40$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.25
2000.00	2.98
1000.00	3.76
500.00	4.22
250.00	9.02
150.00	11.20
90.00	13.60
75.00	4.41
45.00	12.64
20.00	16.29
1.00	18.64

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



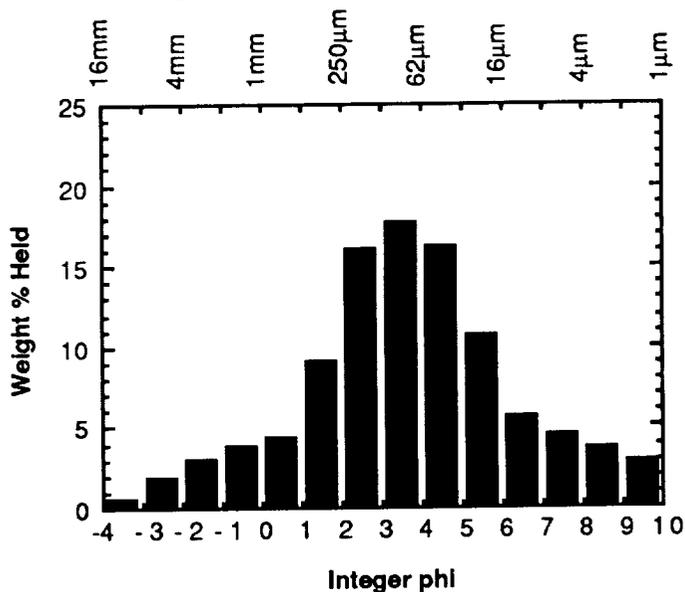
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.76
Median:	3.65
Mode:	3.50
Sorting:	2.70
Skewness:	0.05
Kurtosis:	1.35

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.07
16	1.39
25	2.21
50	3.65
75	5.19
84	6.23
95	8.76

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 75080**  
 (subsample 75081,44)  
 E.A. King PI

**LOCATION COMMENTS:**

This is a surface soil sample from a site on the regolith surface a few meters from sample 75060 at Station 5 on the southwest rim of Camelot crater. The sample area is undulating with cobbles and boulders covering 30% of the surface.

**MATURITY INDEX:**

$I_g/FeO = 40$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.25
2000.00	2.98
1000.00	3.76
841.00	1.91
420.00	7.11
250.00	7.37
177.00	6.74
150.00	4.20
125.00	4.62
105.00	5.44
74.00	8.18
53.00	6.27
44.00	4.81
37.00	4.26
30.00	8.02
20.00	8.06
10.00	7.37
1.00	5.65

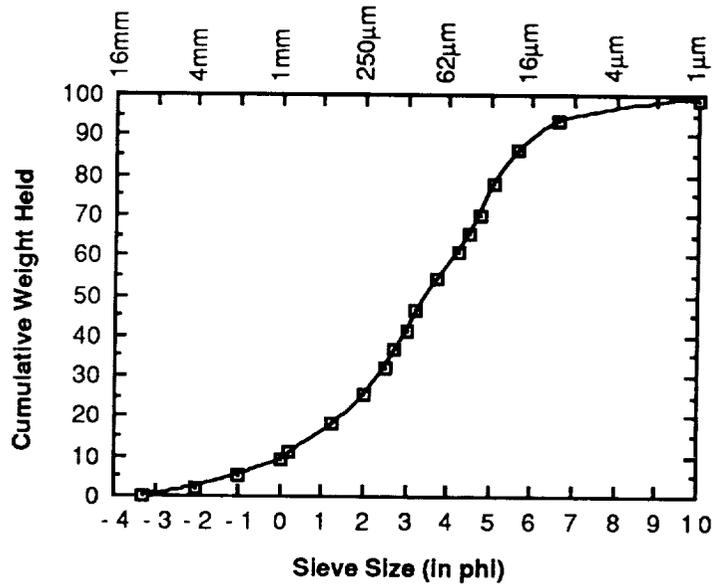
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.30
Median:	3.46
Mode:	4.50
Sorting:	2.40
Skewness:	-0.09
Kurtosis:	1.16

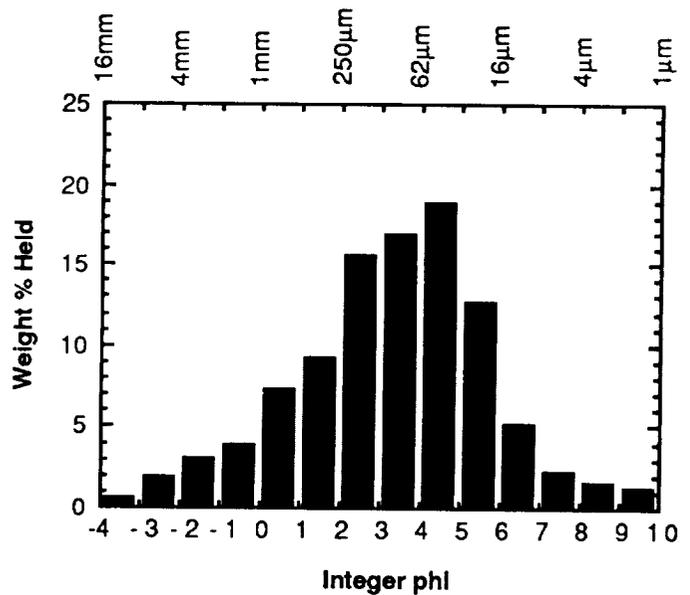
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.07
16	0.98
25	1.97
50	3.46
75	4.94
84	5.46
95	7.35

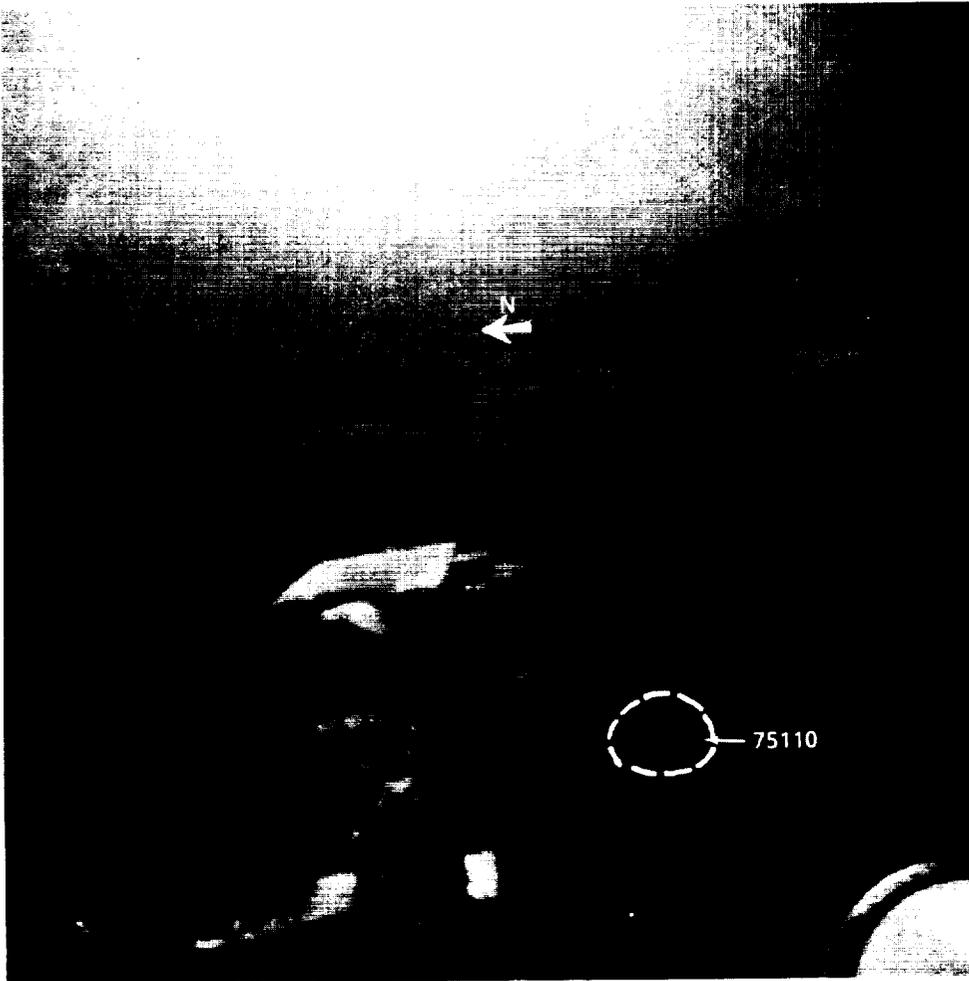
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



75110 Sample Environment

AS17-133-20281

Pre-sampling, looking at  
the south rim of Victory  
Crater.

Soil: 75110  
(subsample 75111,13)  
D.S. McKay PI

LOCATION COMMENTS:

This sample was collected during LRV traverse #7, from the apex of Victory crater on the inner slope of the crater rim. The site has pebbles to 1 meter size boulders covering 2-3% of the surface. The fragments appear to be randomly scattered, but there is a slight concentration on the rims of small craters.

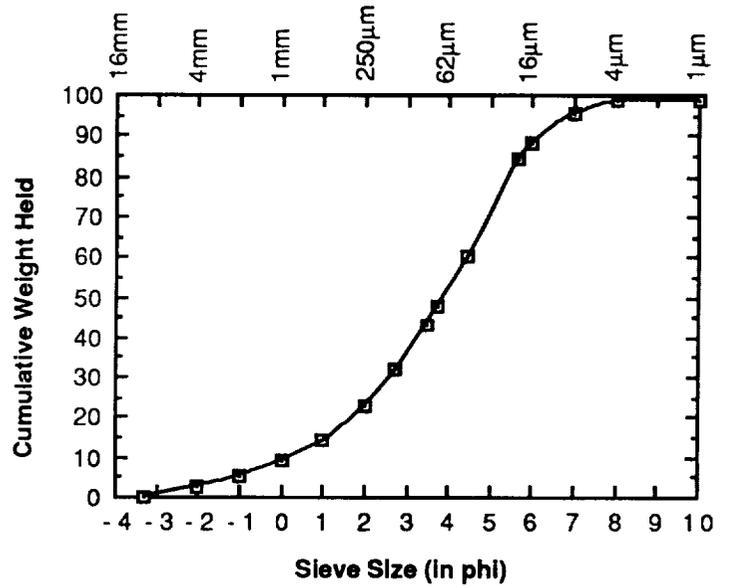
MATURITY INDEX:

$I_s/FeO = 54$  (submature)

TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.62
2000.00	2.58
1000.00	3.90
500.00	5.12
250.00	8.97
150.00	8.87
90.00	11.39
75.00	4.41
45.00	12.13
20.00	24.18
15.60	4.37
7.80	6.95
3.90	2.96
1.00	0.55

CUMULATIVE WEIGHT DISTRIBUTION CURVE



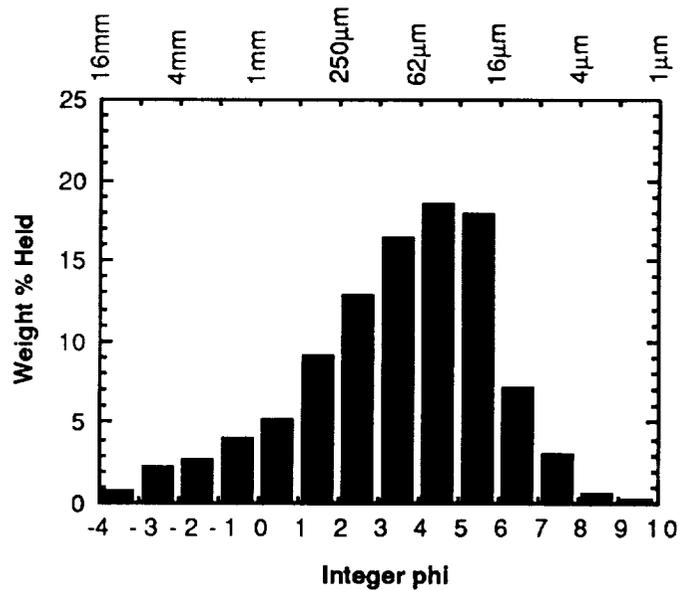
GRAPHIC AND MOMENT MEASURES

Mean:	3.58
Median:	3.87
Mode:	4.50
Sorting:	2.30
Skewness:	-0.22
Kurtosis:	1.08

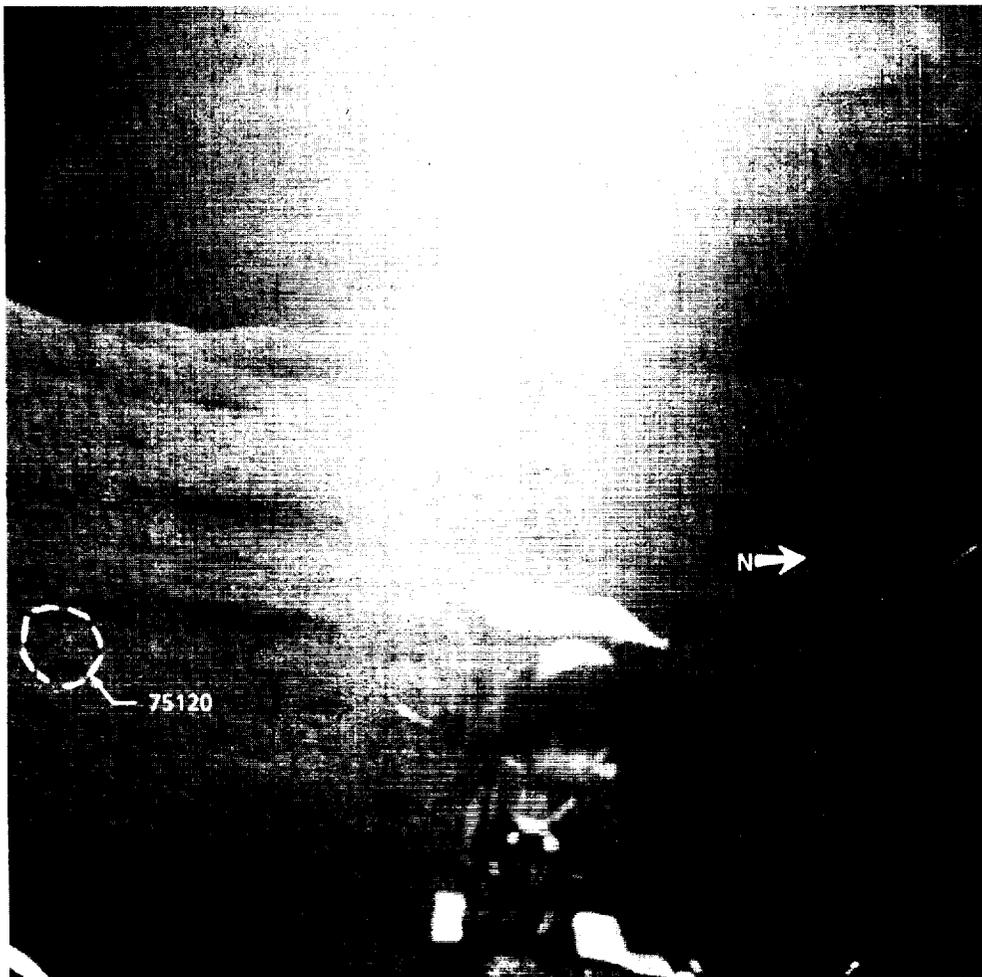
MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-1.07
16	1.25
25	2.17
50	3.87
75	5.18
84	5.63
95	6.88

SIZE DISTRIBUTION HISTOGRAM



ORIGINAL FACE  
BLACK AND WHITE PHOTOGRAPH



75120 Sample Environment

AS17-133-20315

Sample collected from  
LRV after picture was  
taken.

Soil: 75120  
(subsample 75121,14)  
D.S. McKay PI

LOCATION COMMENTS:

This soil was collected during LRV traverse #8, between Victory and Horatio craters in an area of dark mantle between the small craters. The area is flat with scattered craters less than 5 meters in diameter. Clods <10 cm are found on the rims of fresh craters. "Raindrops" are present on the surface of the sample area.

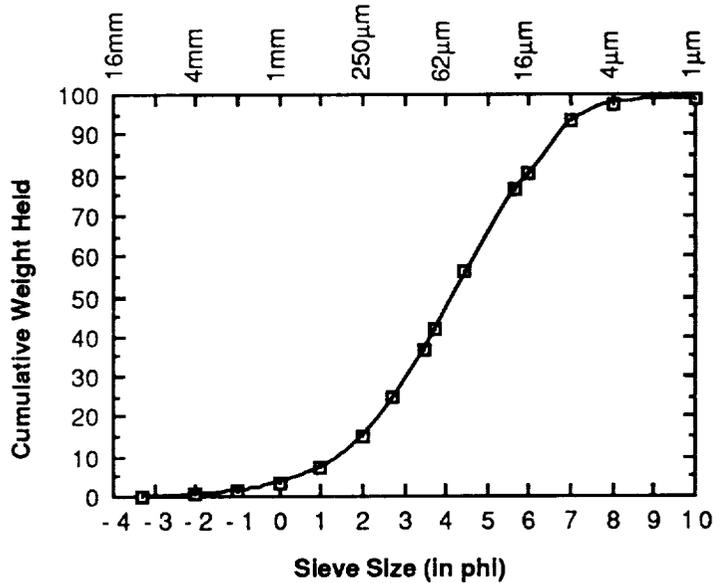
MATURITY INDEX:

$I_s/FeO = 67$  (mature)

TABULATED SIEVE DATA

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	0.38
2000.00	0.85
1000.00	2.07
500.00	3.85
250.00	7.90
150.00	9.51
90.00	12.36
75.00	4.98
45.00	14.07
20.00	20.64
15.60	4.02
7.80	12.86
3.90	4.22
1.00	1.30

CUMULATIVE WEIGHT DISTRIBUTION CURVE



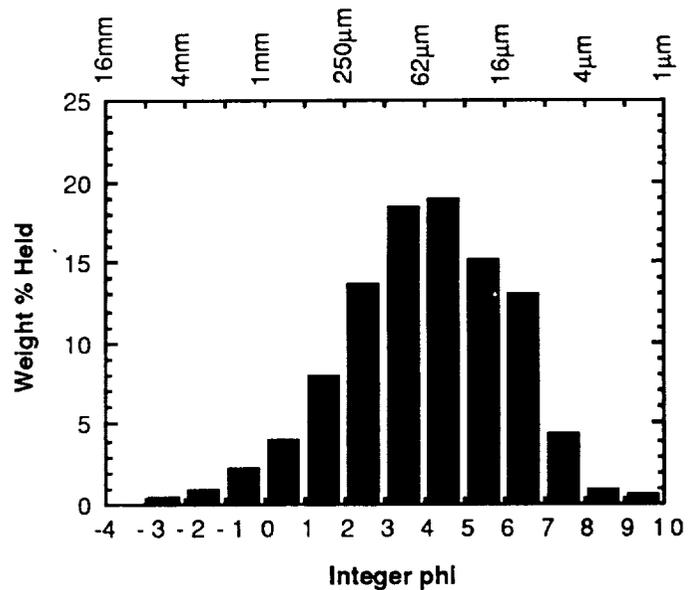
GRAPHIC AND MOMENT MEASURES

Mean:	4.18
Median:	4.16
Mode:	4.50
Sorting:	2.08
Skewness:	-0.03
Kurtosis:	1.01

MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.51
16	2.09
25	2.77
50	4.16
75	5.53
84	6.28
95	7.30

SIZE DISTRIBUTION HISTOGRAM

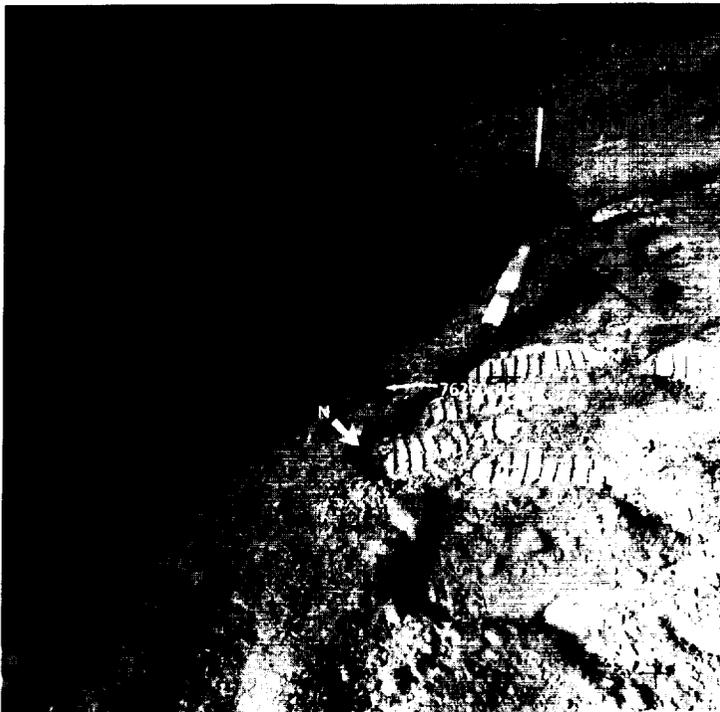


ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH

76260 Sample Environment

AS17-141-21597

Pre-sampling.



76260 Sample Environment

AS17-141-21606

Post-sampling, close up.

**Soil: 76260**  
(subsample 76261,26)  
D.S. McKay PI

**LOCATION COMMENTS:**

This surface soil was collected at Station 6 on the south slope of the North Massif. It has a large boulder nearby which casts a permanent shadow on 76240: 76260 and 76280 are just outside the limit of the overhang. 76260 is a 2 cm skim and 76280 is a 5 cm scoop. The area slopes 11 degrees to the south with scattered fragments <6cm.

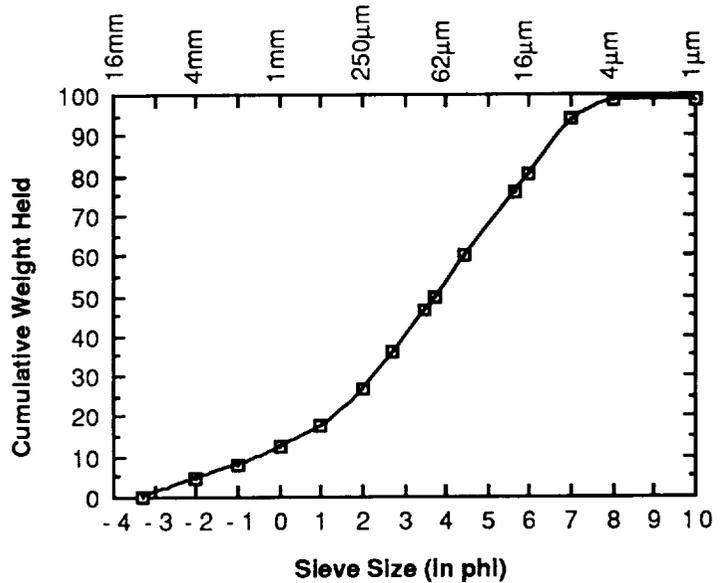
**MATURITY INDEX:**

$I_s/FeO = 58$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	4.45
2000.00	3.35
1000.00	4.35
500.00	5.32
250.00	9.15
150.00	9.11
90.00	10.42
75.00	3.53
45.00	10.51
20.00	15.46
15.60	5.00
7.80	13.36
3.90	4.36
1.00	0.63

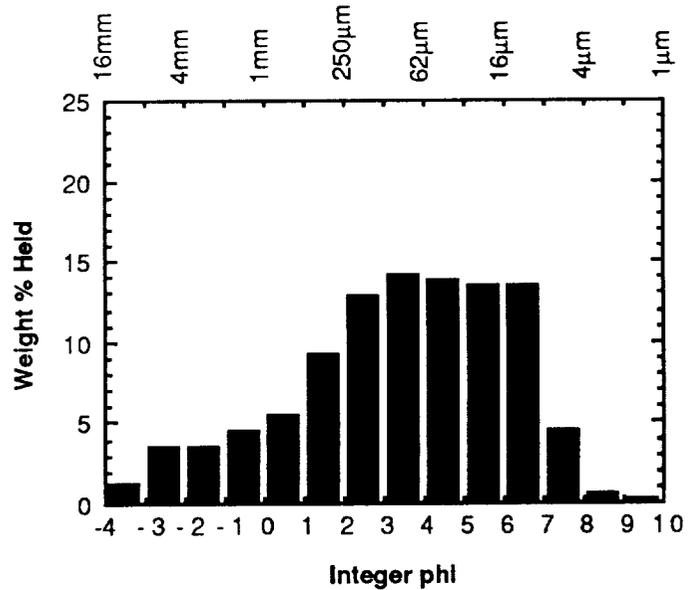
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.59
Median:	3.76
Mode:	3.50
Sorting:	2.74
Skewness:	-0.17
Kurtosis:	0.99

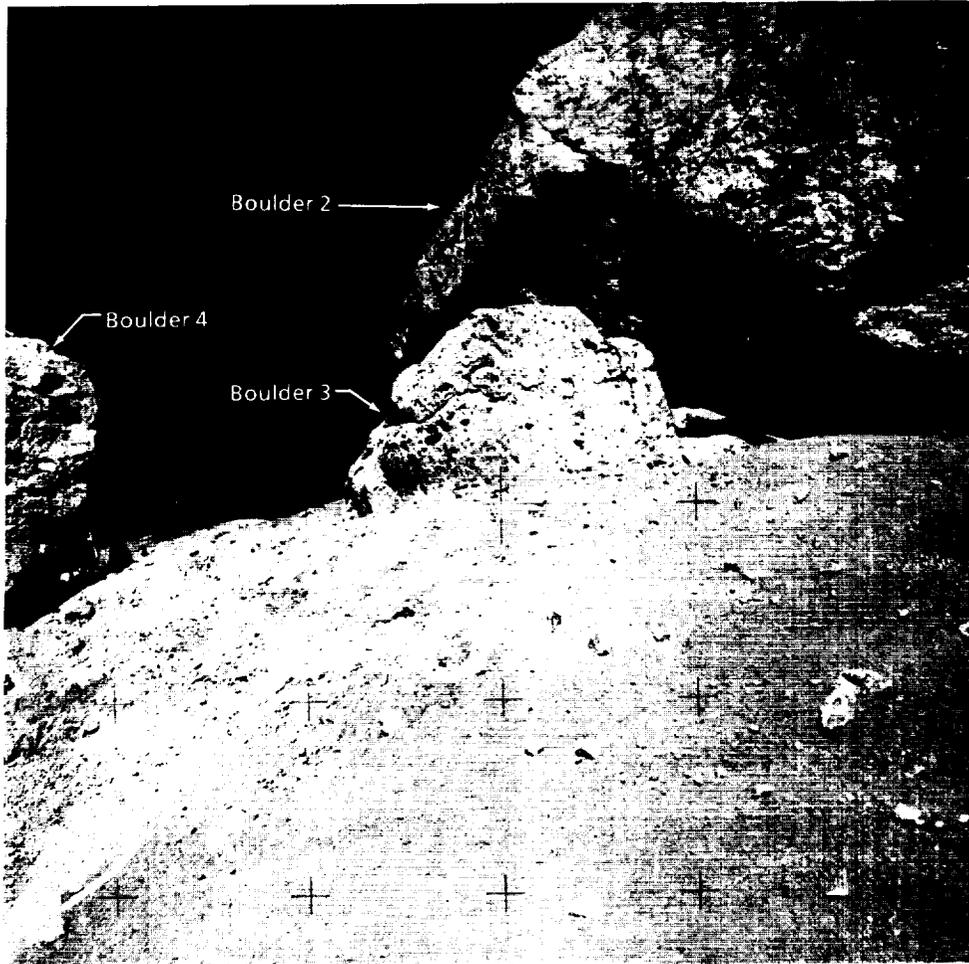
**SIZE DISTRIBUTION HISTOGRAM**



**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.84
16	0.75
25	1.85
50	3.76
75	5.60
84	6.25
95	7.19

ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



76280 Sample Environment

AS17-140-21434

Sample is in the region of  
permanent shadow under  
boulder #4.

**Soil: 76280**  
(subsample 76281,6)  
D.S. McKay PI

**LOCATION COMMENTS:**

This surface soil was collected at Station 6 on the south slope of the North Massif. It has a large boulder nearby which casts a permanent shadow on 76240; 76260 and 76280 are just outside the limit of the overhang. 76260 is a 2 cm skim and 76280 is a 5 cm scoop. The area slopes 11 degrees to the south with scattered fragments <6cm.

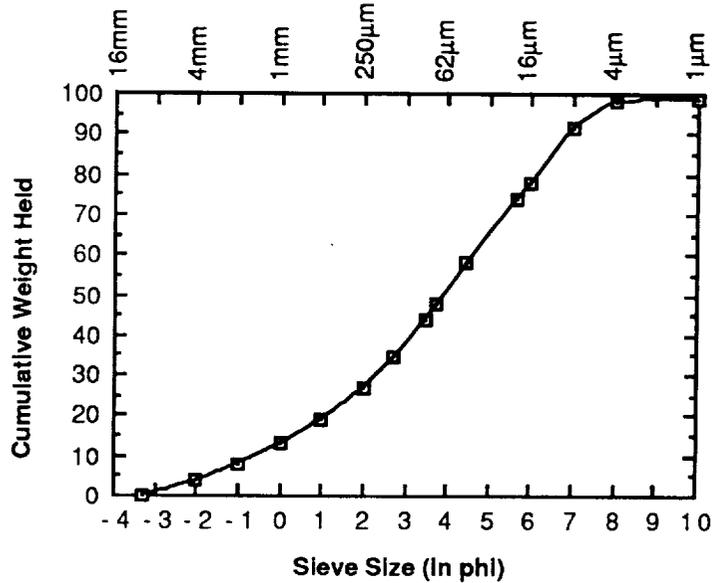
**MATURITY INDEX:**

$I_p/FeO = 45$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	3.65
2000.00	4.35
1000.00	4.88
500.00	6.30
250.00	7.81
150.00	7.42
90.00	9.64
75.00	3.72
45.00	10.40
20.00	15.61
15.60	4.22
7.80	13.82
3.90	6.09
1.00	1.10

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



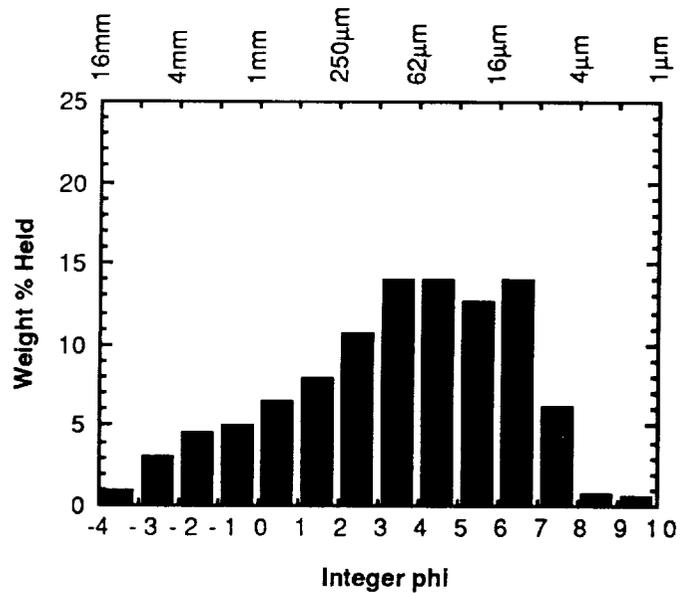
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.62
Median:	3.89
Mode:	4.50
Sorting:	2.86
Skewness:	-0.18
Kurtosis:	0.94

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-1.66
16	0.52
25	1.77
50	3.89
75	5.75
84	6.44
95	7.44

**SIZE DISTRIBUTION HISTOGRAM**



76320 Sample Environment

AS17-140-21497

Post-sampling. Note the  
difference in texture after  
sample was collected from  
"dust covered" region of  
Boulder #1.



76320 Sample Environment

AS17-140-21482

Post-sampling close up.

**Soil: 76320**  
(subsample 76321,10)  
E.A. King PI

**LOCATION COMMENTS:**

Surface soil collected at Station 6 on a flat face of boulder 1. The site slopes 10 degrees to the north with fragments up to 5 cm scattered about. A few 5-10 cm craters are found in the area.

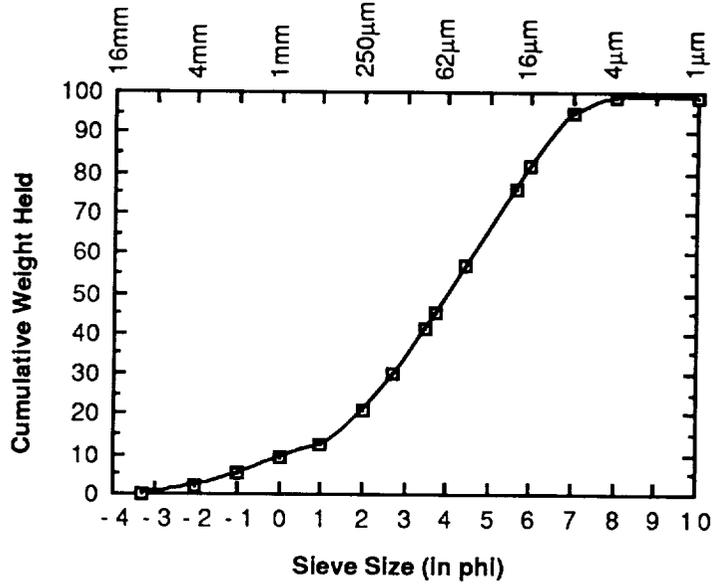
**MATURITY INDEX:**

$I_p/FeO = 93$  (mature)

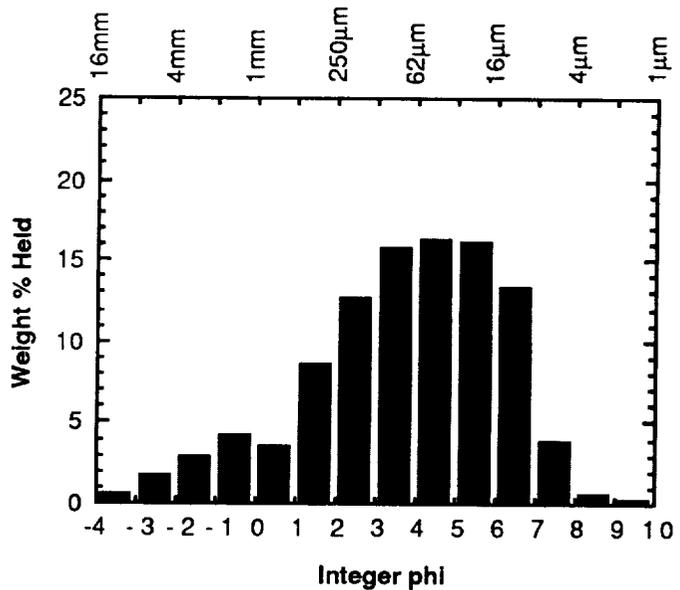
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.11
2000.00	2.83
1000.00	4.13
500.00	3.41
250.00	8.53
150.00	8.74
90.00	11.13
75.00	4.10
45.00	12.03
20.00	18.76
15.60	5.78
7.80	13.18
3.90	3.70
1.00	0.56

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.90
Median:	4.04
Mode:	4.50
Sorting:	2.39
Skewness:	-0.17
Kurtosis:	1.02

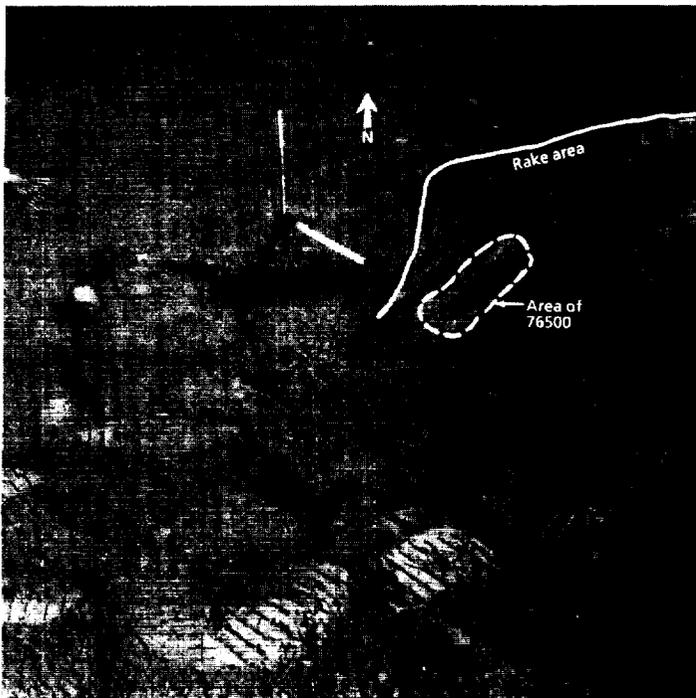
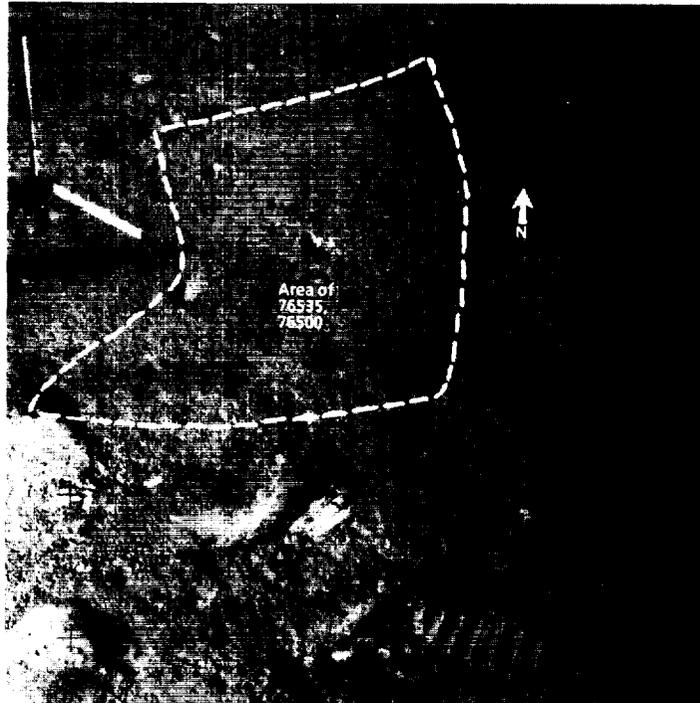
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.98
16	1.48
25	2.36
50	4.04
75	5.60
84	6.16
95	7.06

76500 Sample Environment

AS17-141-21622

Pre-sampling close up.



76500 Sample Environment

AS17-141-21625

Post-sampling close up.

**Soil: 76500**  
(subsample 76501,1)  
D.S. McKay PI

**LOCATION COMMENTS:**

Reference soil 76500 and rake soil 76530-76577 were collected at Station 6, 25 meters west of the boulder cluster on the ejecta blanket of a 10 meter crater. The site slopes 11 degrees to the south with 1-10 cm fragments scattered randomly. One large 10 meter crater and many <30 cm craters are found at the site.

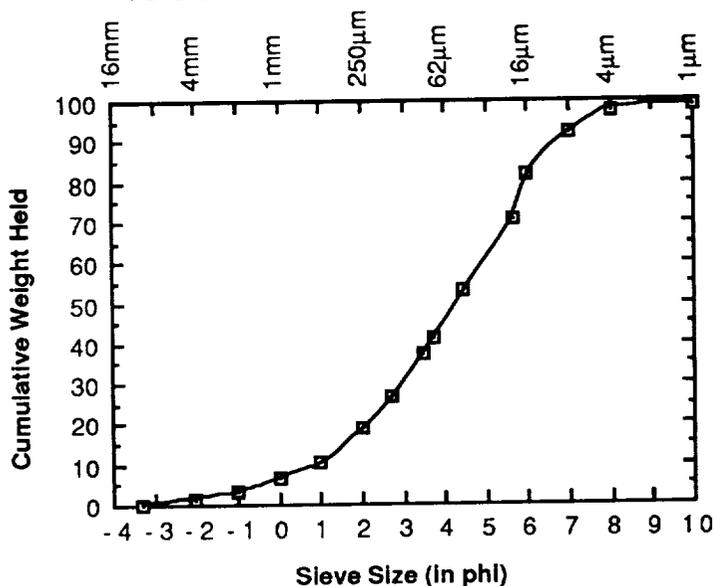
**MATURITY INDEX:**

$I_s/FeO = 58$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	1.57
2000.00	1.48
1000.00	3.35
500.00	3.77
250.00	8.56
150.00	8.01
90.00	10.64
75.00	4.01
45.00	11.68
20.00	17.67
15.60	11.24
7.80	10.24
3.90	5.49
1.00	1.29

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



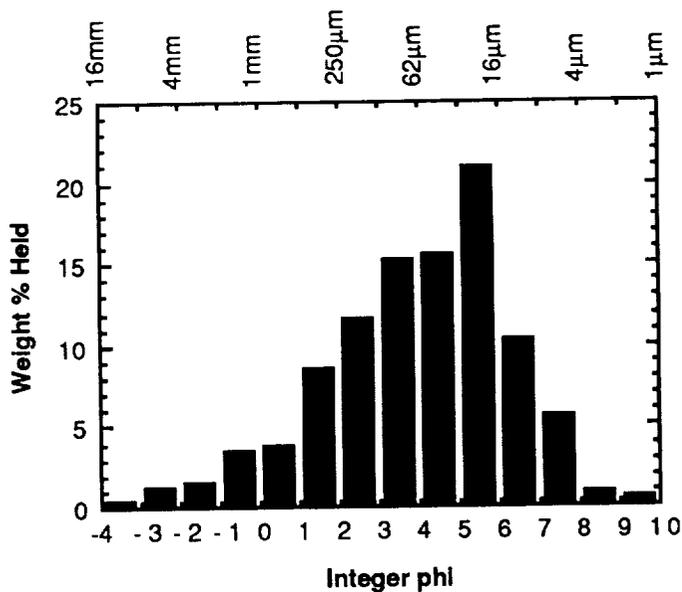
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.05
Median:	4.28
Mode:	5.50
Sorting:	2.29
Skewness:	-0.18
Kurtosis:	1.00

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.40
16	1.71
25	2.59
50	4.28
75	5.79
84	6.14
95	7.43

**SIZE DISTRIBUTION HISTOGRAM**



# Soil: 76500

(subsample 76501,21)  
E.A. King PI

**LOCATION COMMENTS:**

Reference soil 76500 and rake soil 76530-76577 were collected at Station 6, 25 meters west of the boulder cluster on the ejecta blanket of a 10 meter crater. The site slopes 11 degrees to the south with 1-10 cm fragments scattered randomly. One large 10 meter crater and many <30 cm craters are found at the site.

**MATURITY INDEX:**

$I_s/FeO = 58$  (submature)

**TABULATED SIEVE DATA**

Sieve Size (µm)	Wt %
10000.00	0.00
4000.00	1.57
2000.00	1.48
1000.00	3.35
841.00	0.43
420.00	6.24
250.00	7.64
177.00	6.32
150.00	3.65
125.00	4.16
105.00	4.81
74.00	7.85
53.00	6.64
44.00	5.04
37.00	3.79
30.00	10.11
20.00	9.72
10.00	8.99
1.00	7.22

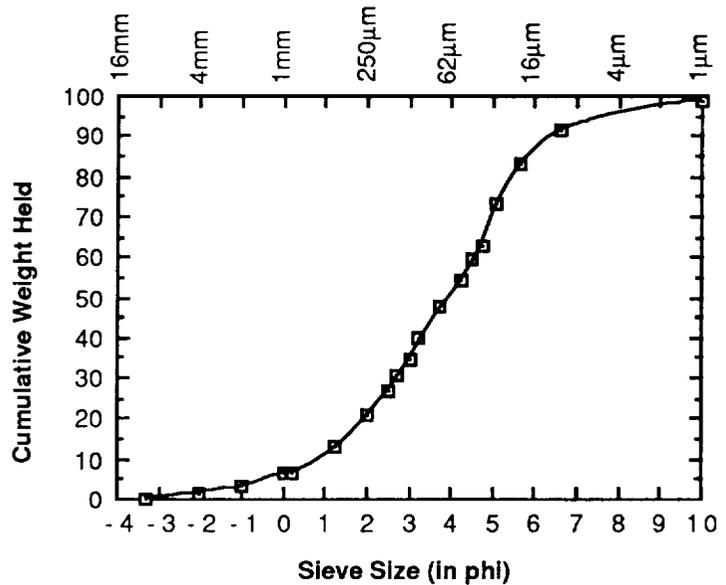
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.75
Median:	3.94
Mode:	4.50
Sorting:	2.30
Skewness:	-0.10
Kurtosis:	1.21

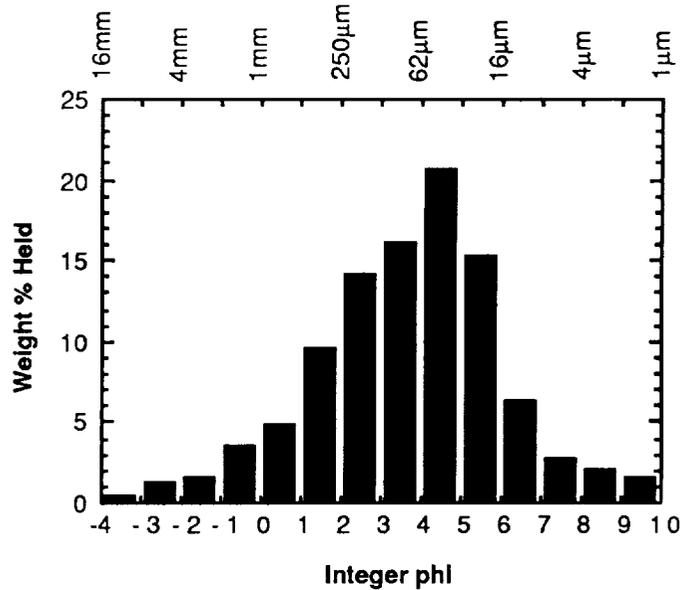
**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-0.45
16	1.57
25	2.35
50	3.94
75	5.15
84	5.75
95	7.82

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



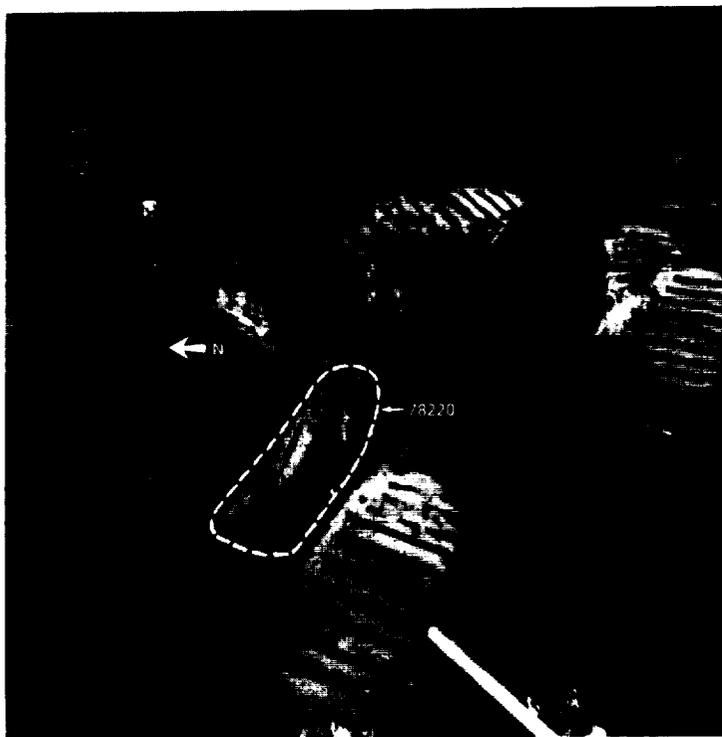
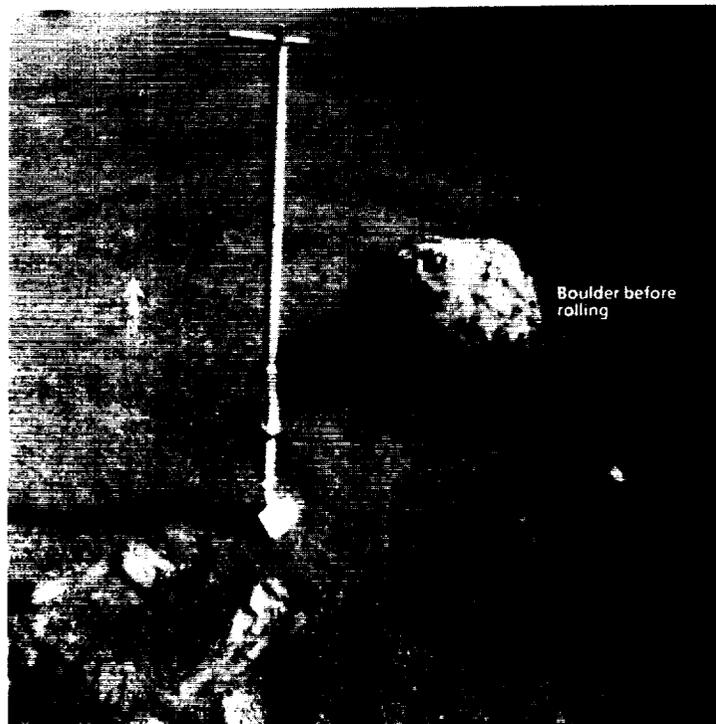
**SIZE DISTRIBUTION HISTOGRAM**



78220 Sample Environment

AS17-142-21698

Pre-sampling.



78220 Sample Environment

AS17-142-21704

Post-sampling photo of soil  
collected beneath rolled  
boulder.

**Soil: 78220**  
(subsample 78221,8)  
E.A. King PI

**LOCATION COMMENTS:**

Soil collected from beneath a .5 meter gabbroic boulder at Station 8, near the base of Sculptured hills, south of Wessex Cleft. The site slopes moderately steeply to the southwest, with scattered pebbles, clods, small rocks and one boulder. The surface is saturated with 1 cm craters, larger craters are present but not abundant.

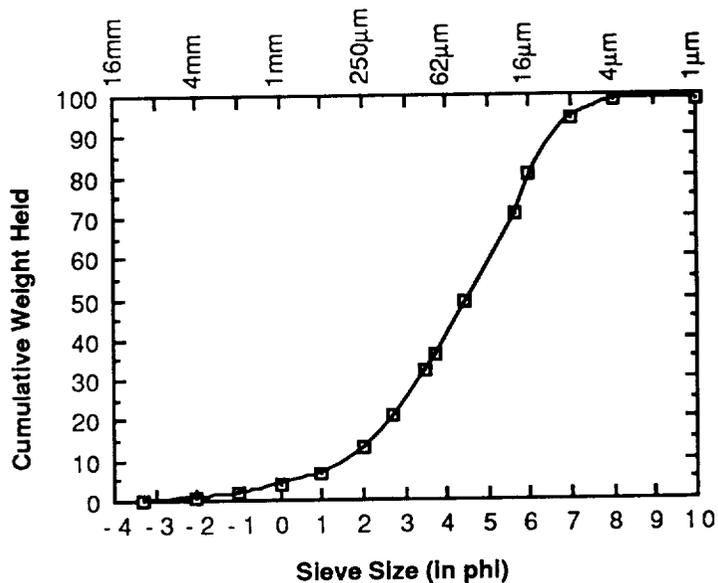
**MATURITY INDEX:**

$I_s/FeO = 93$  (mature)

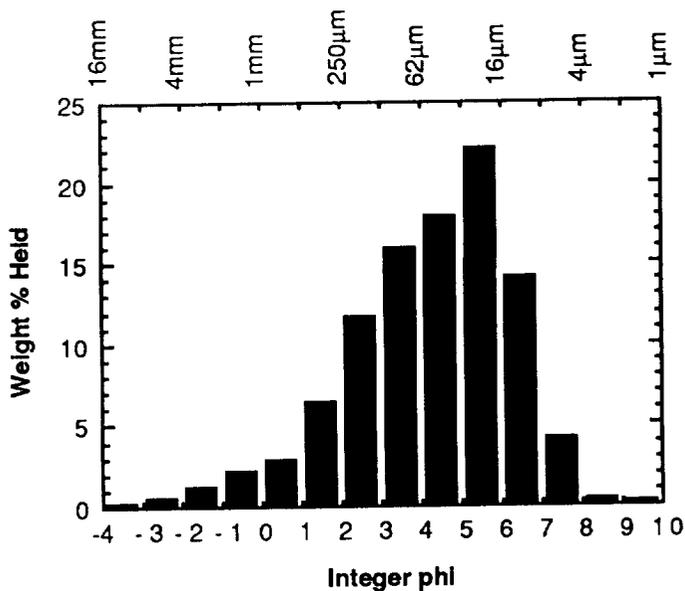
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.62
2000.00	1.13
1000.00	2.18
500.00	2.71
250.00	6.31
150.00	7.92
90.00	10.93
75.00	4.13
45.00	12.95
20.00	21.47
15.60	9.99
7.80	14.04
3.90	4.06
1.00	0.56

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	4.35
Median:	4.54
Mode:	5.50
Sorting:	1.98
Skewness:	-0.19
Kurtosis:	0.99

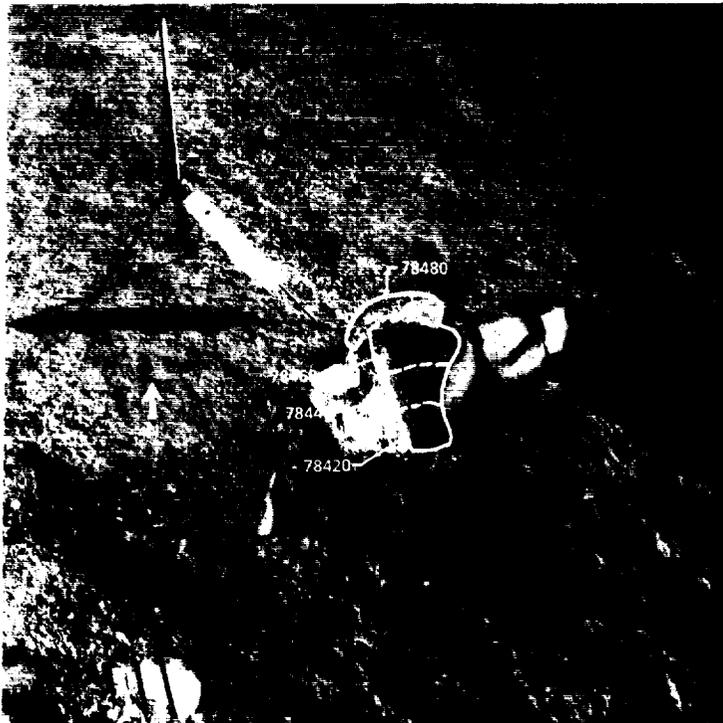
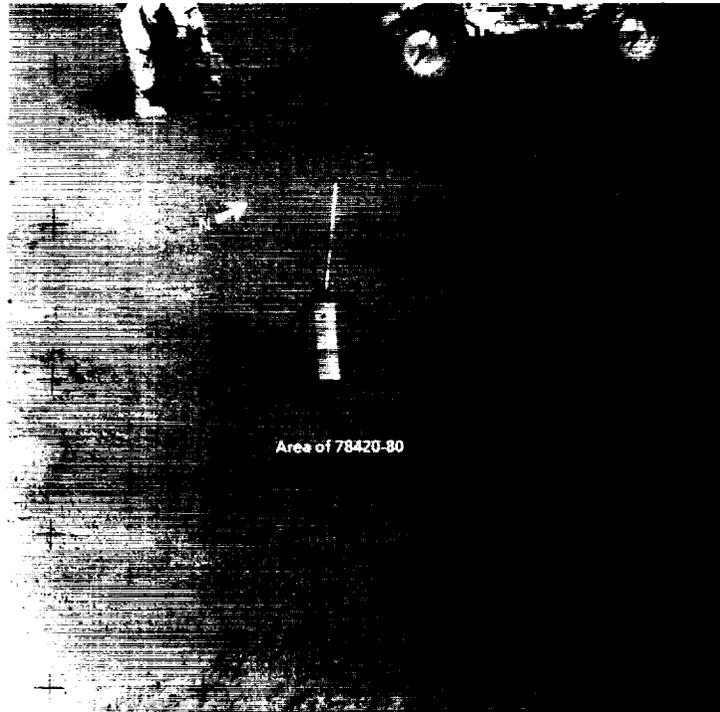
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.43
16	2.32
25	3.03
50	4.54
75	5.81
84	6.19
95	7.13

78420 Sample Environment

AS17-142-21718

Pre-sampling.



78420 Sample Environment

AS17-142-21724

Post-sampling.

**Soil: 78420**  
(subsample 78421,1)  
D.S. McKay PI

**LOCATION COMMENTS:**

This is part of trench sequence at Station 8 at the base of Sculptured Hills south of Wessex Cleft. 78420 is at the bottom of a 25 cm trench, 78440 is at a depth of 6-15 cm, 78460 is at a depth of 1-6 cm, and 78480 is from the upper 1 cm. The site has a moderate slope to the southwest, a few pebbles and clods <5 cm are found, and the area is saturated with 1 cm craters. There are a few larger craters in the area.

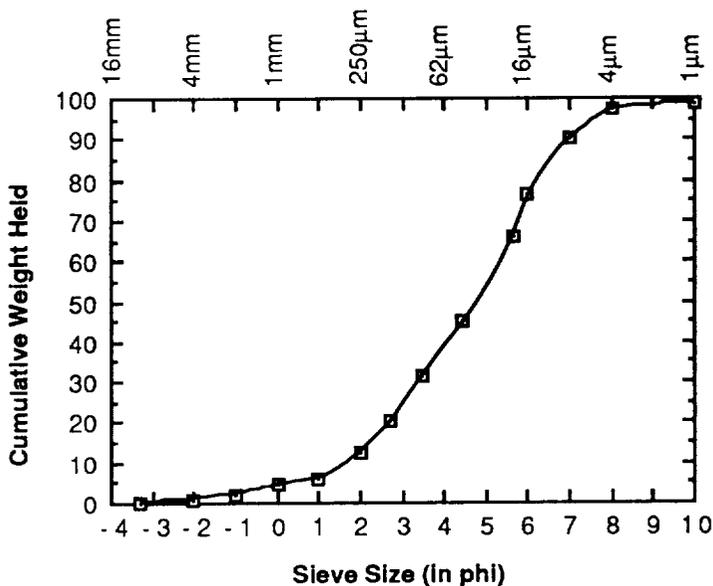
**MATURITY INDEX:**

$I_s/FeO = 92$  (mature)

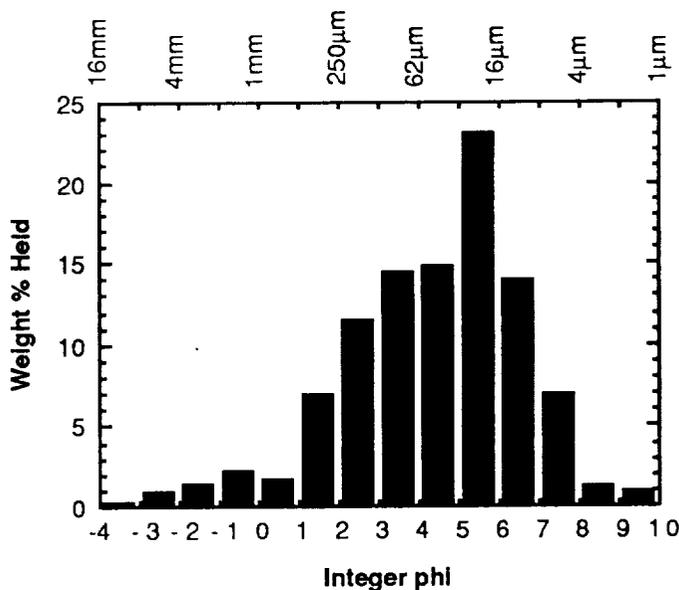
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.97
2000.00	1.23
1000.00	2.12
500.00	1.61
250.00	6.81
150.00	7.54
90.00	11.15
45.00	13.52
20.00	21.03
15.60	10.35
7.80	13.84
3.90	6.92
1.00	1.91

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	4.53
Median:	4.80
Mode:	5.50
Sorting:	2.11
Skewness:	-0.21
Kurtosis:	1.02

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.42
16	2.35
25	3.05
50	4.80
75	5.94
84	6.45
95	7.59

**Soil: 78420**  
(subsample 78421,19)  
E.A. King PI

**LOCATION COMMENTS:**

This is part of trench sequence at Station 8 at the base of Sculptured Hills south of Wessex Cleft. 78420 is at the bottom of a 25 cm trench, 78440 is at a depth of 6-15 cm, 78460 is at a depth of 1-6 cm, and 78480 is from the upper 1 cm. The site has a moderate slope to the southwest, a few pebbles and clods <5 cm are found, and the area is saturated with 1 cm craters. There are a few larger craters in the area.

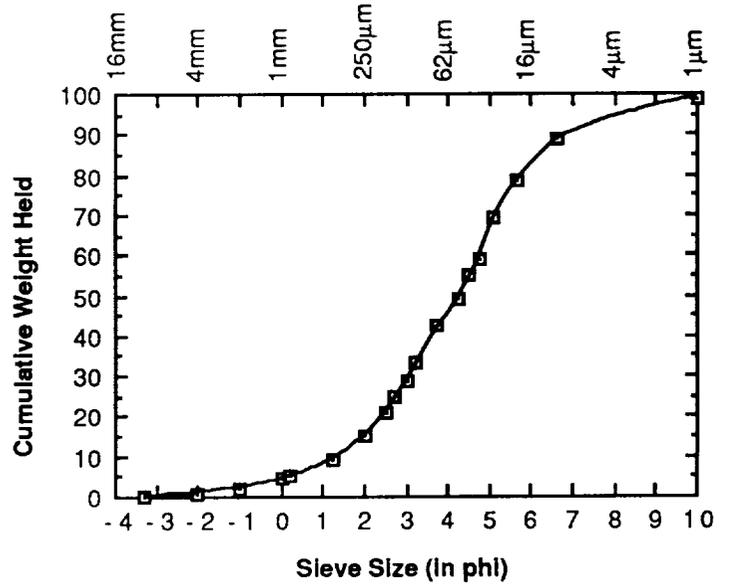
**MATURITY INDEX:**

$I_g/FeO = 92$  (mature)

**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	0.97
2000.00	1.23
1000.00	2.12
841.00	0.82
420.00	4.30
250.00	5.84
177.00	5.80
150.00	3.45
125.00	4.28
105.00	4.76
74.00	8.68
53.00	6.62
44.00	6.10
37.00	4.04
30.00	10.58
20.00	8.88
10.00	10.58
1.00	9.96

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



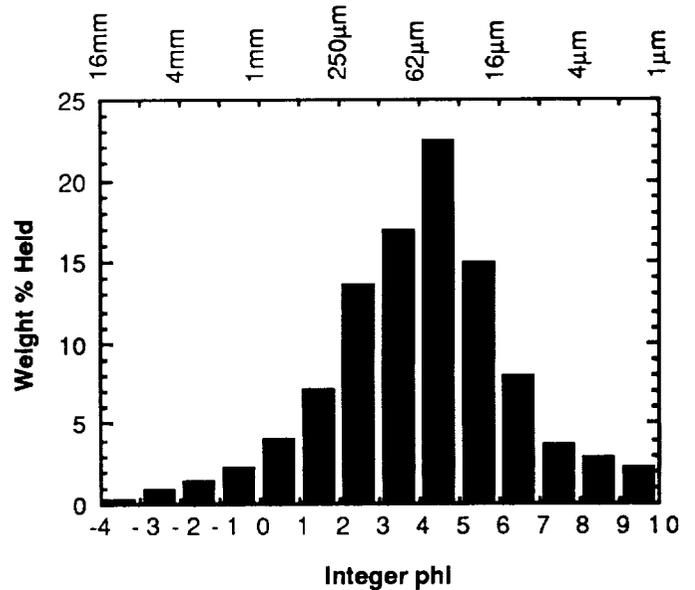
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.15
Median:	4.30
Mode:	4.50
Sorting:	2.24
Skewness:	-0.06
Kurtosis:	1.27

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	0.21
16	2.07
25	2.77
50	4.30
75	5.39
84	6.09
95	8.34

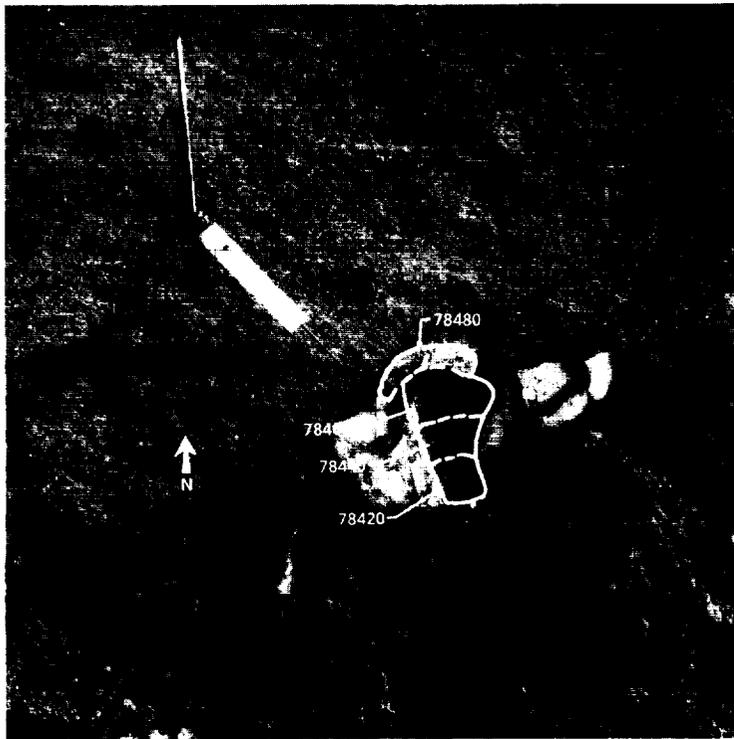
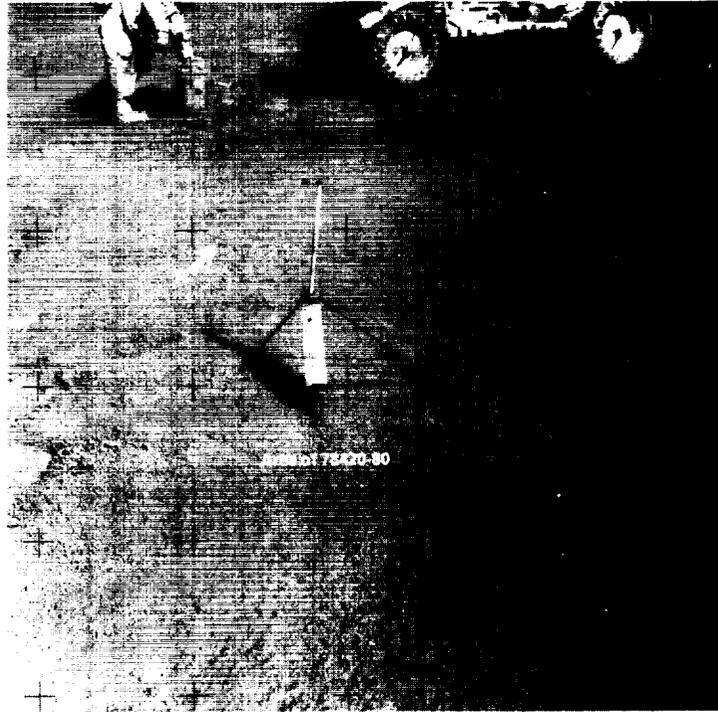
**SIZE DISTRIBUTION HISTOGRAM**



78460 Sample Environment

AS17-142-21718

Pre-sampling.



78460 Sample Environment

AS17-142-21724

Post-sampling.

**Soil: 78460**  
 (subsample 78461,11)  
 E.A. King PI

**LOCATION COMMENTS:**

This is part of trench sequence at Station 8 at the base of Sculptured Hills south of Wessex Cleft. 78420 is at the bottom of a 25 cm trench, 78440 is at a depth of 6-15 cm, 78460 is at a depth of 1-6 cm, and 78480 is from the upper 1 cm. The site has a moderate slope to the southwest, a few pebbles and clods <5 cm are found, and the area is saturated with 1 cm craters. There are a few larger craters in the area.

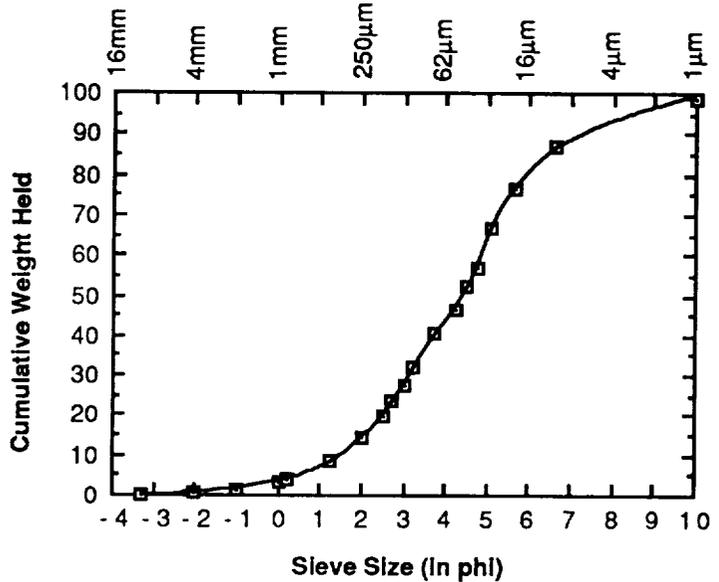
**MATURITY INDEX:**

$I_p/FeO = 83$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.48
2000.00	1.01
1000.00	1.93
841.00	0.55
420.00	4.25
250.00	6.09
177.00	5.18
150.00	3.77
125.00	4.25
105.00	4.64
74.00	8.15
53.00	5.88
44.00	6.29
37.00	4.33
30.00	9.90
20.00	10.09
10.00	9.98
1.00	12.25

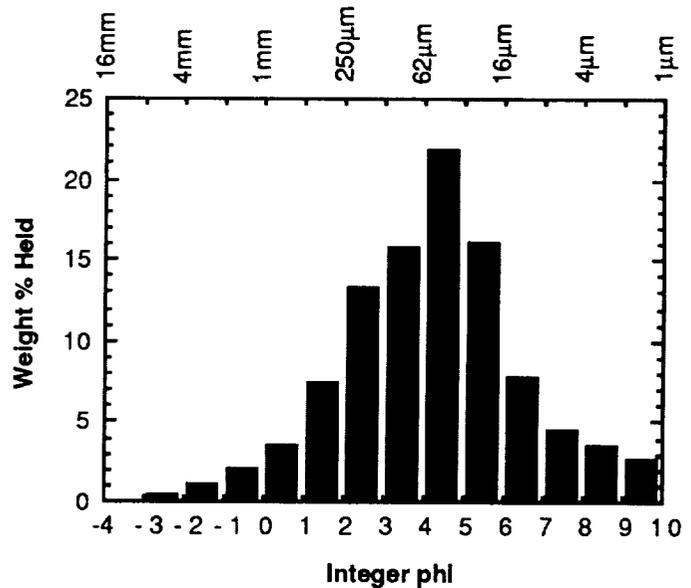
**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**GRAPHIC AND MOMENT MEASURES**

Mean:	4.29
Median:	4.40
Mode:	4.50
Sorting:	2.24
Skewness:	-0.02
Kurtosis:	1.24

**SIZE DISTRIBUTION HISTOGRAM**



**MOMENT MEASURE DATA**

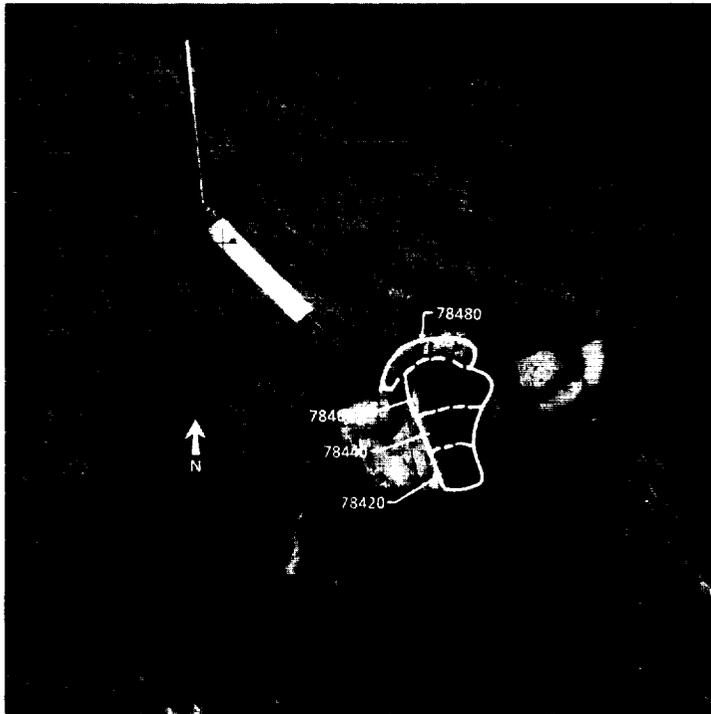
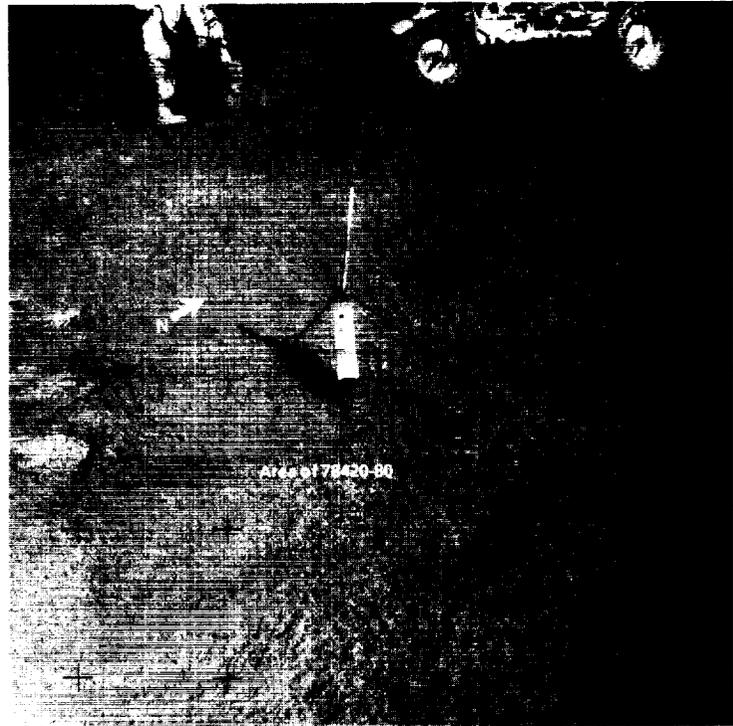
Wt % held	$\phi$ size
5	0.58
16	2.18
25	2.85
50	4.40
75	5.51
84	6.28
95	8.62

GENERAL NOTE  
BLACK AND WHITE PHOTOGRAPH

78480 Sample Environment

AS17-142-21718

Pre-sampling.



78480 Sample Environment

AS17-142-21724

Post-sampling.

**Soil: 78480**  
(subsample 78481,27)  
E.A. King PI

**LOCATION COMMENTS:**

This is part of trench sequence at Station 8 at the base of Sculptured Hills south of Wessex Cleft. 78420 is at the bottom of a 25 cm trench, 78440 is at a depth of 6-15 cm, 78460 is at a depth of 1-6 cm, and 78480 is from the upper 1 cm. The site has a moderate slope to the southwest, a few pebbles and clods <5 cm are found, and the area is saturated with 1 cm craters. There are a few larger craters in the area.

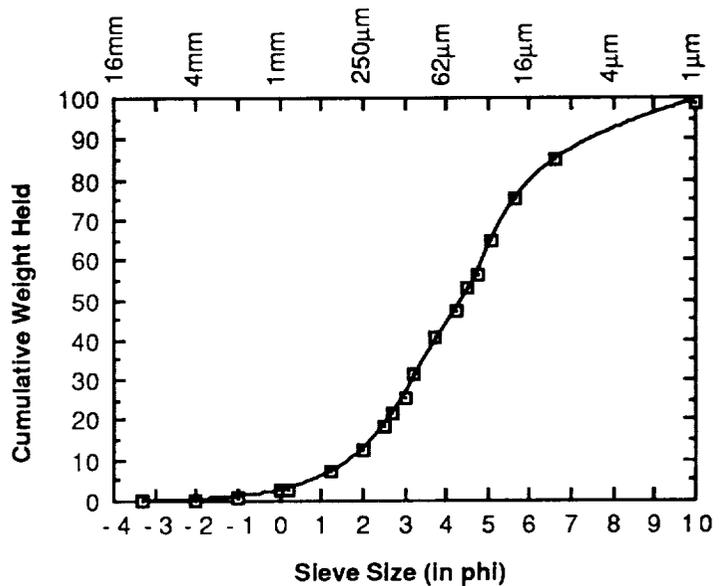
**MATURITY INDEX:**

$I_s/FeO = 82$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	0.18
2000.00	0.67
1000.00	1.50
841.00	0.59
420.00	4.22
250.00	5.51
177.00	5.82
150.00	3.32
125.00	3.88
105.00	5.39
74.00	9.17
53.00	6.96
44.00	5.64
37.00	3.38
30.00	8.67
20.00	10.16
10.00	10.18
1.00	13.76

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



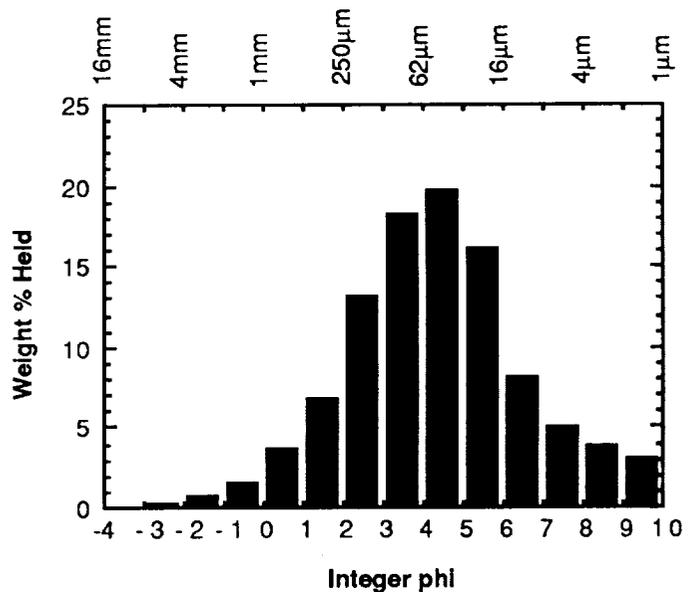
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.38
Median:	4.37
Mode:	4.50
Sorting:	2.25
Skewness:	0.06
Kurtosis:	1.21

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	0.81
16	2.30
25	2.96
50	4.37
75	5.64
84	6.47
95	8.76

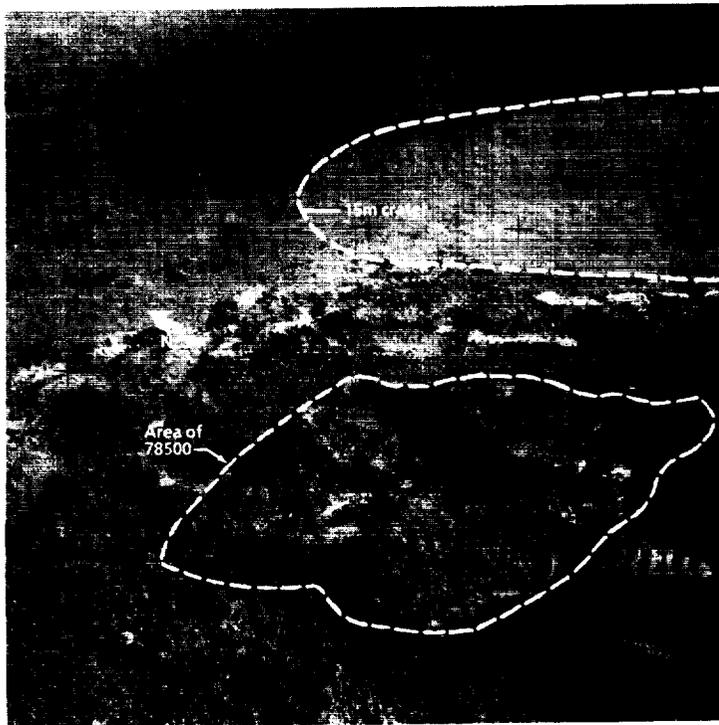
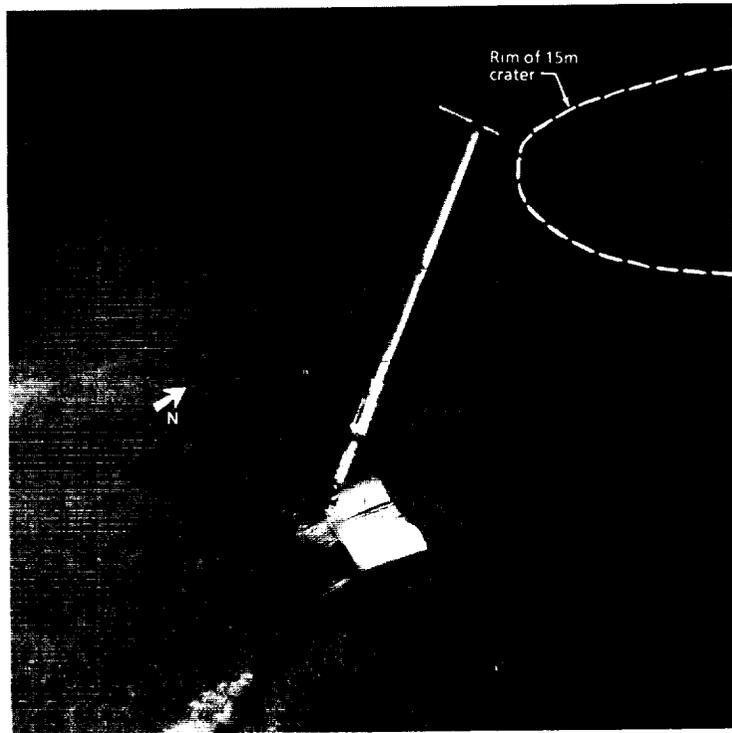
**SIZE DISTRIBUTION HISTOGRAM**



78500 Sample Environment

AS17-142-21706

Pre-sampling.



78500 Sample Environment

AS17-142-21712

Post-sampling, rake and  
soil collected from  
disturbed area.

**Soil: 78500**  
 (subsample 78501,1)  
 D.S. McKay PI

**LOCATION COMMENTS:**

This is a surface sample to accompany rake sample 78525-599, collected near the rim of a subdued 15 meter crater at the base of Sculptured Hills, south of Wessex Cleft. The site has a moderate slope to the southwest with scattered pebbles, clods, and small rocks.

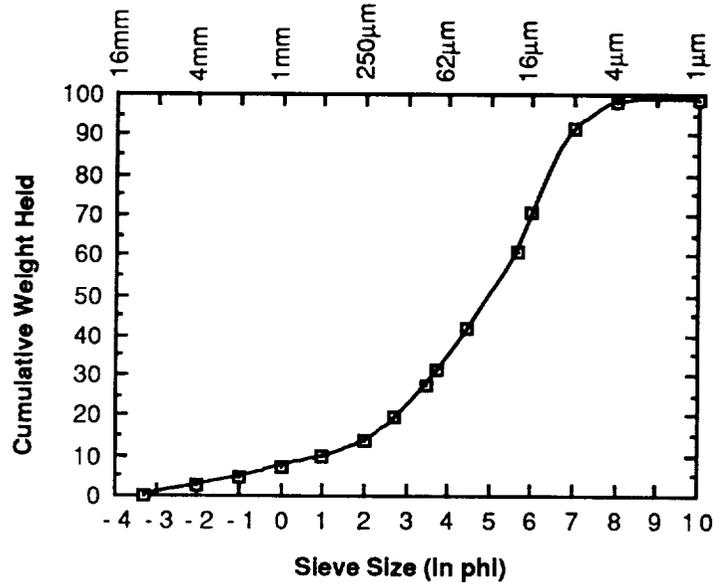
**MATURITY INDEX:**

$I_p/FeO = 36$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.45
2000.00	2.10
1000.00	2.73
500.00	2.27
250.00	4.19
150.00	5.60
90.00	8.35
75.00	3.39
45.00	10.89
20.00	19.10
15.60	9.84
7.80	20.62
3.90	6.53
1.00	0.95

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



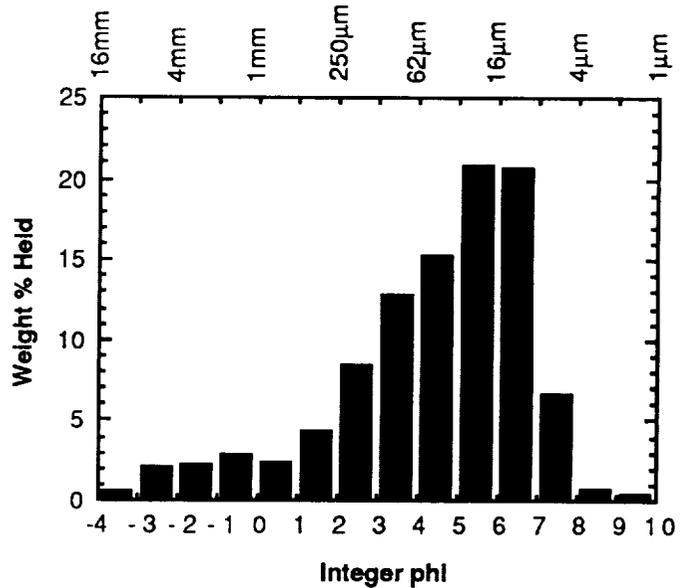
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.63
Median:	4.99
Mode:	5.50
Sorting:	2.30
Skewness:	-0.33
Kurtosis:	1.16

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.82
16	2.34
25	3.25
50	4.99
75	6.17
84	6.55
95	7.45

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 78500**  
(subsample 78501,25)  
E.A. King PI

**LOCATION COMMENTS:**

This is a surface sample to accompany rake sample 78525-599, collected near the rim of a subdued 15 meter crater at the base of Sculptured Hills, south of Wessex Cleft. The site has a moderate slope to the southwest with scattered pebbles, clods, and small rocks.

**MATURITY INDEX:**

$I_g/FeO = 36$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	2.44
2000.00	2.10
1000.00	2.73
841.00	0.52
420.00	5.73
250.00	5.71
177.00	4.93
150.00	3.26
125.00	2.92
105.00	2.87
74.00	6.64
53.00	5.58
44.00	5.32
37.00	3.30
30.00	10.10
20.00	9.85
10.00	11.63
1.00	13.36

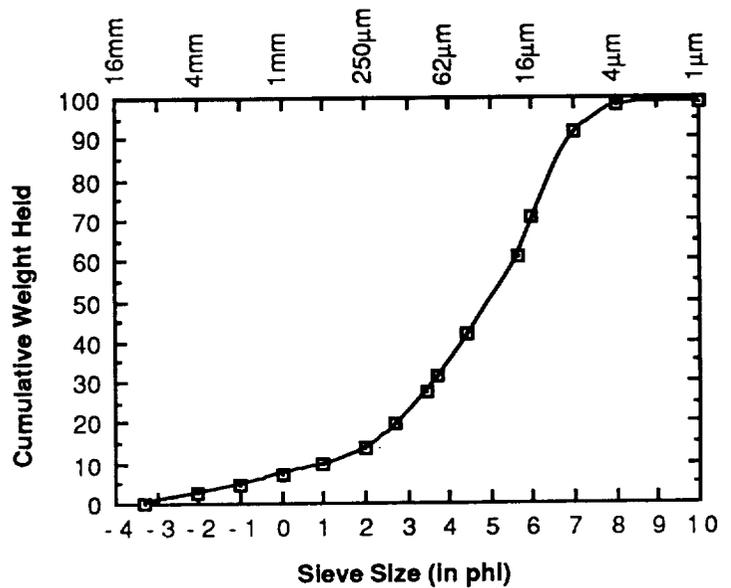
**GRAPHIC AND MOMENT MEASURES**

Mean:	4.17
Median:	4.46
Mode:	4.50
Sorting:	2.65
Skewness:	-0.14
Kurtosis:	1.24

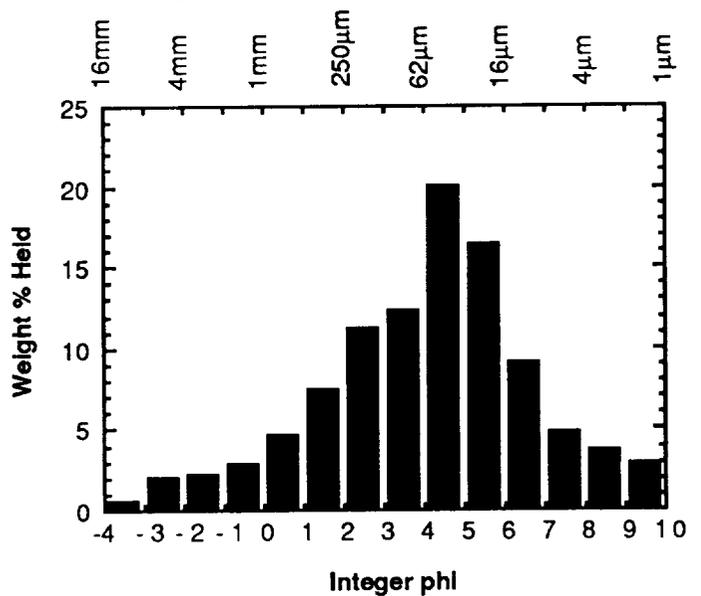
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-0.82
16	1.60
25	2.56
50	4.46
75	5.71
84	6.44
95	8.72

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



ORIGINAL PAGE  
BLACK AND WHITE PHOTOGRAPH



79001 - 79002 Sample  
Environment

AS17-143-21837

During sampling.

# Soil: 79001

(subsample 79001,215) (Core; depth below surface, 45.4 - 45.9 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Double drive tube 79001/79002 was taken 2 meters from two 1 meter craters on the southeast flank of the Van Serg crater ejecta blanket, at Station 9. The site has a gentle slope to the southeast away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Astronauts report that driving the first core was easy. The second one was a little tougher, and then it got very hard at the end. >1mm particles were hand picked and not sieved, where they would have broken down, so there is a discontinuity in the size distribution caused by the lab procedures.

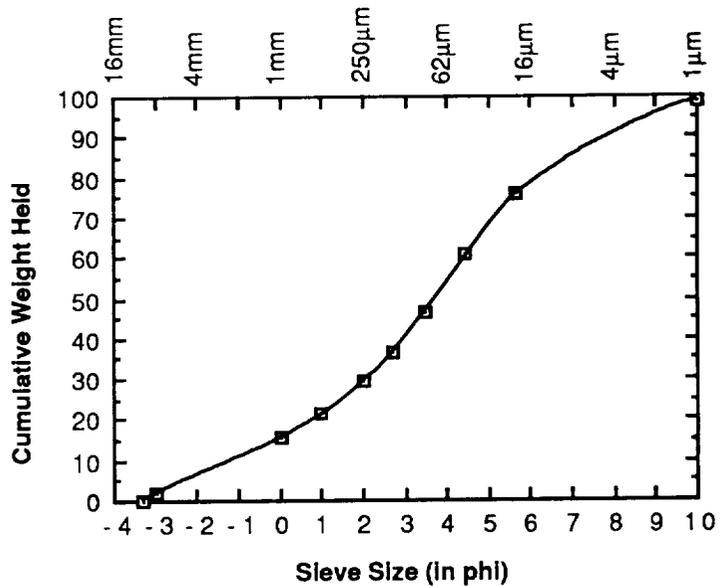
## MATURITY INDEX:

$I_g/FeO = 59$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
8000.00	1.77
1000.00	13.81
500.00	5.82
250.00	8.02
150.00	7.42
90.00	9.65
45.00	14.26
20.00	14.83
1.00	23.42

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



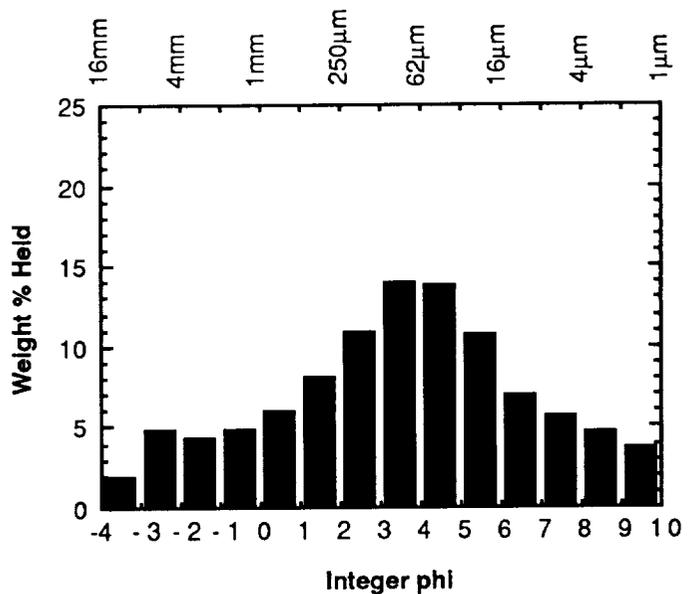
## GRAPHIC AND MOMENT MEASURES

Mean:	3.55
Median:	3.72
Mode:	3.50
Sorting:	3.41
Skewness:	-0.07
Kurtosis:	1.14

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.34
16	0.08
25	1.48
50	3.72
75	5.58
84	6.84
95	9.01

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 79001

(subsample 79001,213) (Core; depth below surface, 37.4 - 37.9 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Double drive tube 79001/79002 was taken 2 meters from two 1 meter craters on the southeast flank of the Van Serg crater ejecta blanket, at Station 9. The site has a gentle slope to the southeast away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Astronauts report that driving the first core was easy. The second one was a little tougher, and then it got very hard at the end. >1mm particles were hand picked and not sieved, where they would have broken down, so there is a discontinuity in the size distribution caused by the lab procedures.

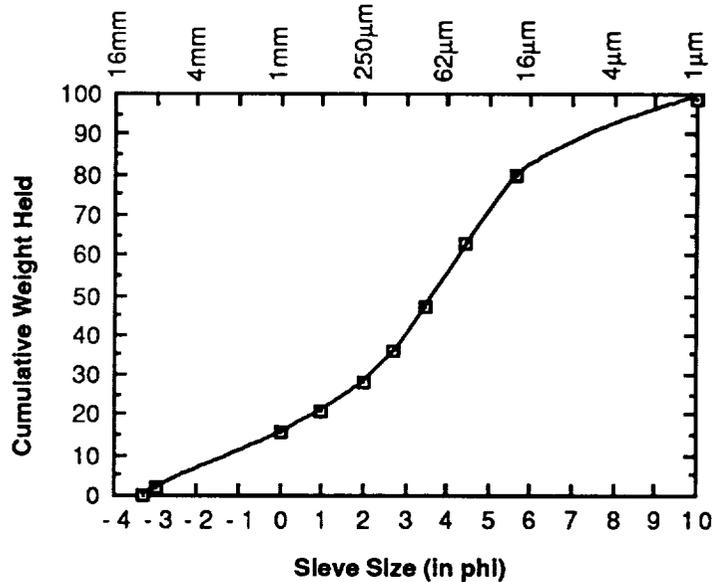
## MATURITY INDEX:

$I_g/FeO = 56$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
8000.00	1.77
1000.00	13.81
500.00	5.66
250.00	7.00
150.00	7.66
90.00	11.01
45.00	15.79
20.00	17.25
1.00	19.05

CUMULATIVE WEIGHT DISTRIBUTION CURVE



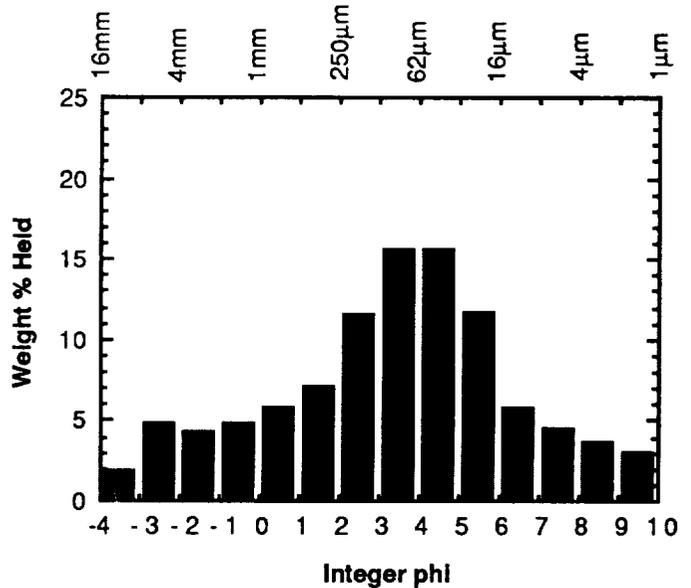
## GRAPHIC AND MOMENT MEASURES

Mean:	3.35
Median:	3.67
Mode:	3.50
Sorting:	3.24
Skewness:	-0.12
Kurtosis:	1.23

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.34
16	0.08
25	1.57
50	3.67
75	5.28
84	6.29
95	8.79

SIZE DISTRIBUTION HISTOGRAM



# Soil: 79001

(subsample 79001,211) (Core; depth below surface, 32.9 - 33.4 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

Double drive tube 79001/79002 was taken 2 meters from two 1 meter craters on the southeast flank of the Van Serg crater ejecta blanket, at Station 9. The site has a gentle slope to the southeast away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Astronauts report that driving the first core was easy. The second one was a little tougher, and then it got very hard at the end. >1mm particles were hand picked and not sieved, where they would have broken down, so there is a discontinuity in the size distribution caused by the lab procedures.

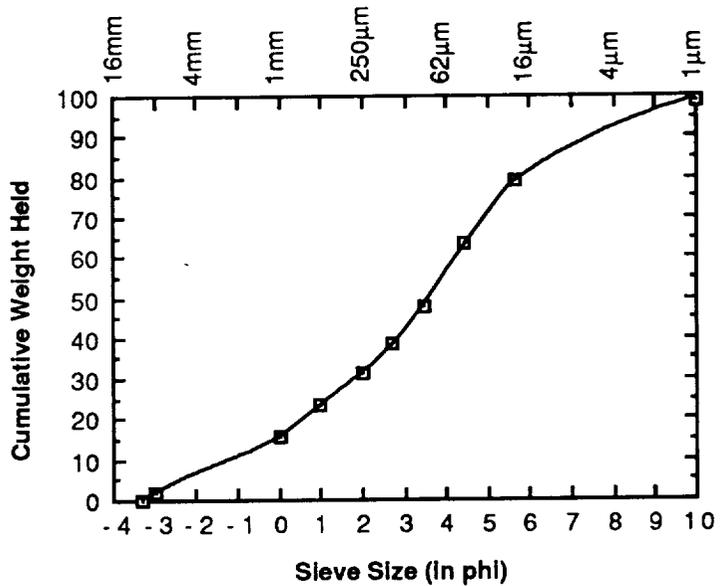
## MATURITY INDEX:

$I_g/FeO = 50$  (submature)

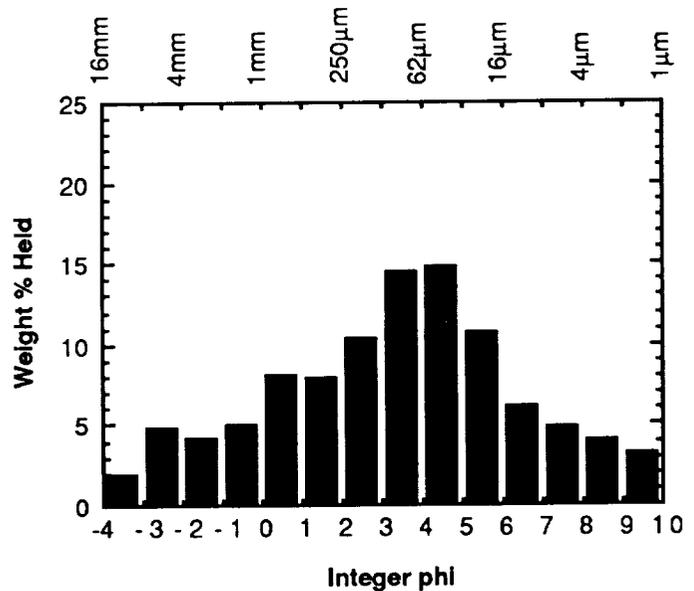
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
8000.00	1.77
1000.00	13.81
500.00	8.02
250.00	7.80
150.00	7.12
90.00	9.41
45.00	15.41
20.00	15.51
1.00	20.14

CUMULATIVE WEIGHT DISTRIBUTION CURVE



SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	3.37
Median:	3.62
Mode:	4.50
Sorting:	3.29
Skewness:	-0.09
Kurtosis:	1.11

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.35
16	0.06
25	1.18
50	3.62
75	5.30
84	6.44
95	8.85

# Soil: 79001

(subsample 79001,209) (Core; depth below surface, 28.9 - 29.4 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Double drive tube 79001/79002 was taken 2 meters from two 1 meter craters on the southeast flank of the Van Serg crater ejecta blanket, at Station 9. The site has a gentle slope to the southeast away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Astronauts report that driving the first core was easy. The second one was a little tougher, and then it got very hard at the end. >1mm particles were hand picked and not sieved, where they would have broken down, so there is a discontinuity in the size distribution caused by the lab procedures.

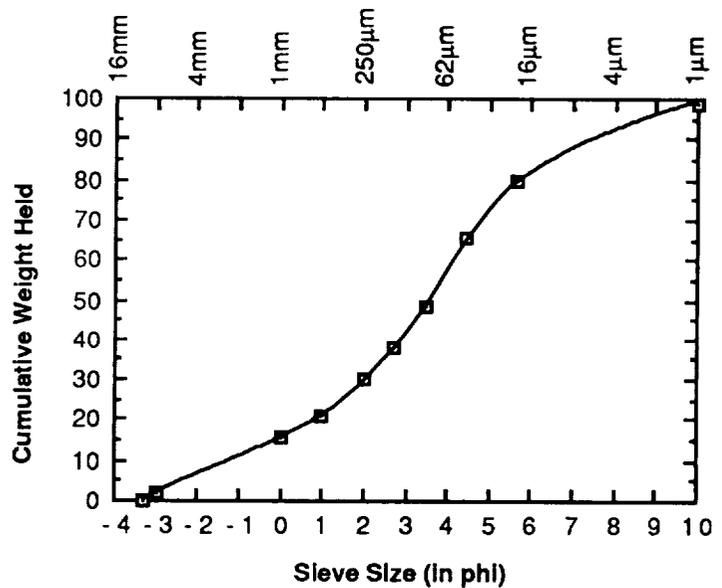
## MATURITY INDEX:

$I_s/FeO = 57$  (submature)

## TABULATED SIEVE DATA

Sieve Size (μm)	Wt %
10000.00	0.00
8000.00	1.77
1000.00	13.81
500.00	5.37
250.00	8.82
150.00	8.22
90.00	10.57
45.00	16.51
20.00	14.56
1.00	19.36

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



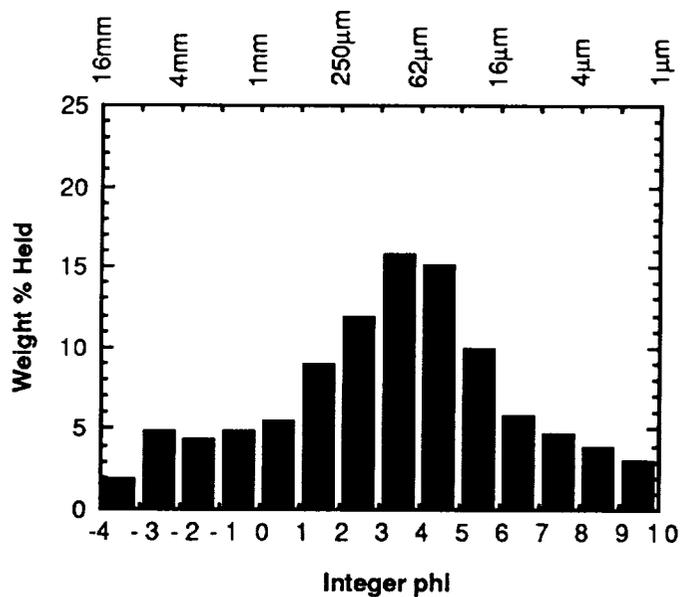
## GRAPHIC AND MOMENT MEASURES

Mean:	3.33
Median:	3.57
Mode:	3.50
Sorting:	3.25
Skewness:	-0.09
Kurtosis:	1.24

## MOMENT MEASURE DATA

Wt % held	Ø size
5	-2.34
16	0.08
25	1.50
50	3.57
75	5.20
84	6.34
95	8.81

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 79001

(subsample 79001,207) (Core; depth below surface, 25.4 - 25.9 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

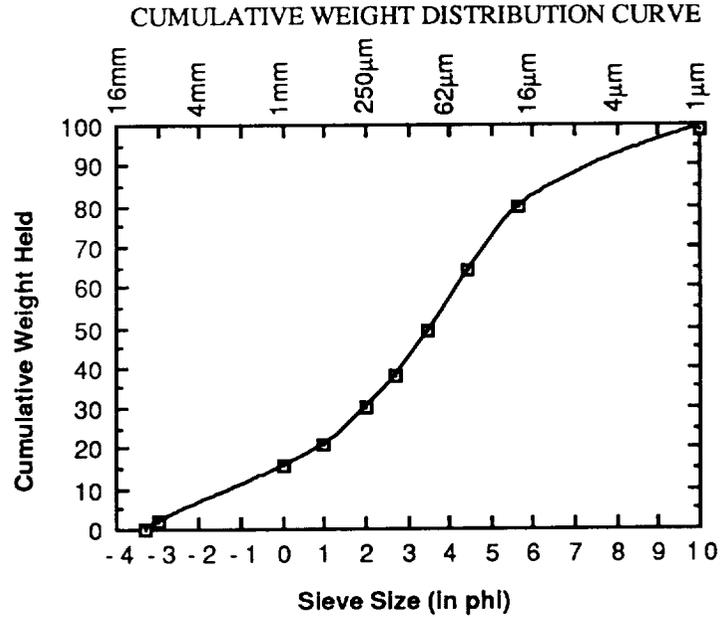
Double drive tube 79001/79002 was taken 2 meters from two 1 meter craters on the southeast flank of the Van Serg crater ejecta blanket, at Station 9. The site has a gentle slope to the southeast away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Astronauts report that driving the first core was easy. The second one was a little tougher, and then it got very hard at the end. >1mm particles were hand picked and not sieved, where they would have broken down, so there is a discontinuity in the size distribution caused by the lab procedures.

## MATURITY INDEX:

$I_g/FeO = 61$  (mature)

## TABULATED SIEVE DATA

Sieve Size (μm)	Wt %
10000.00	0.00
8000.00	1.77
1000.00	13.81
500.00	5.43
250.00	8.98
150.00	8.21
90.00	10.58
45.00	15.52
20.00	15.68
1.00	19.02

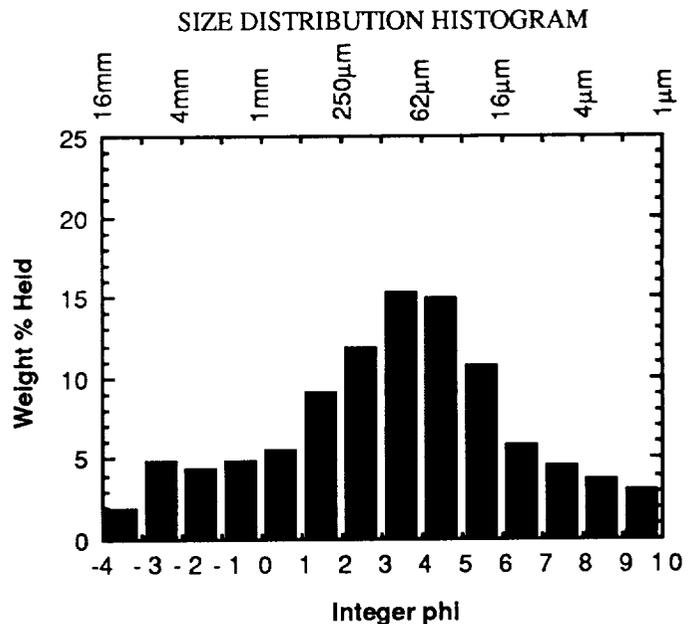


## GRAPHIC AND MOMENT MEASURES

Mean:	3.31
Median:	3.56
Mode:	3.50
Sorting:	3.24
Skewness:	-0.09
Kurtosis:	1.22

## MOMENT MEASURE DATA

Wt % held	Ø size
5	-2.34
16	0.08
25	1.49
50	3.56
75	5.22
84	6.29
95	8.79



# Soil: 79001

(subsample 79001,205) (Core; depth below surface, 20.4 - 20.9 cm)

D.S. McKay PI

## LOCATION COMMENTS:

Double drive tube 79001/79002 was taken 2 meters from two 1 meter craters on the southeast flank of the Van Serg crater ejecta blanket, at Station 9. The site has a gentle slope to the southeast away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Astronauts report that driving the first core was easy. The second one was a little tougher, and then it got very hard at the end. >1mm particles were hand picked and not sieved, where they would have broken down, so there is a discontinuity in the size distribution caused by the lab procedures.

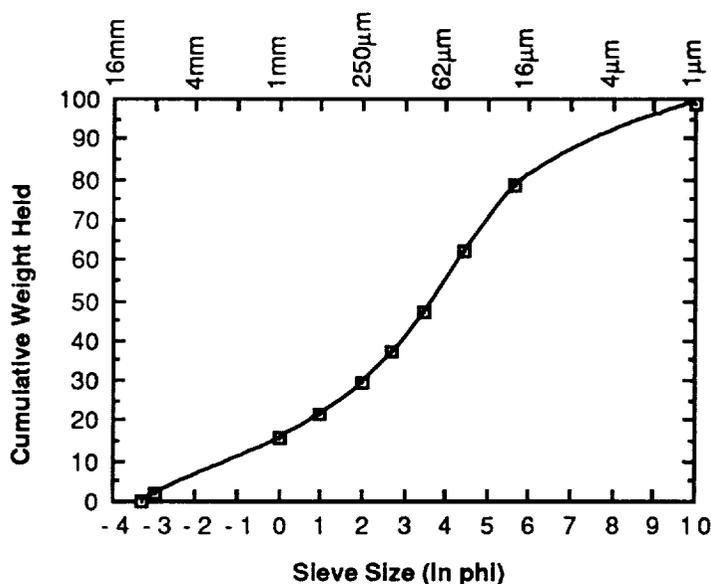
## MATURITY INDEX:

$I_s/FeO = 41$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
8000.00	1.77
1000.00	13.81
500.00	6.14
250.00	7.67
150.00	7.88
90.00	9.49
45.00	15.52
20.00	16.36
1.00	20.34

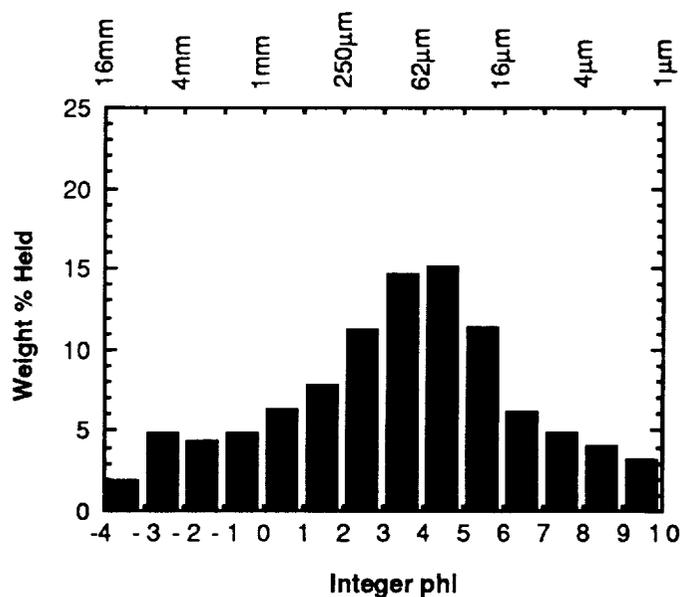
## CUMULATIVE WEIGHT DISTRIBUTION CURVE



## GRAPHIC AND MOMENT MEASURES

Mean:	3.41
Median:	3.69
Mode:	4.50
Sorting:	3.30
Skewness:	-0.10
Kurtosis:	1.18

## SIZE DISTRIBUTION HISTOGRAM



## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.34
16	0.07
25	1.46
50	3.69
75	5.34
84	6.47
95	8.86

# Soil: 79002

(subsample 79002,146) (Core; depth below surface, 11.5 - 12.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

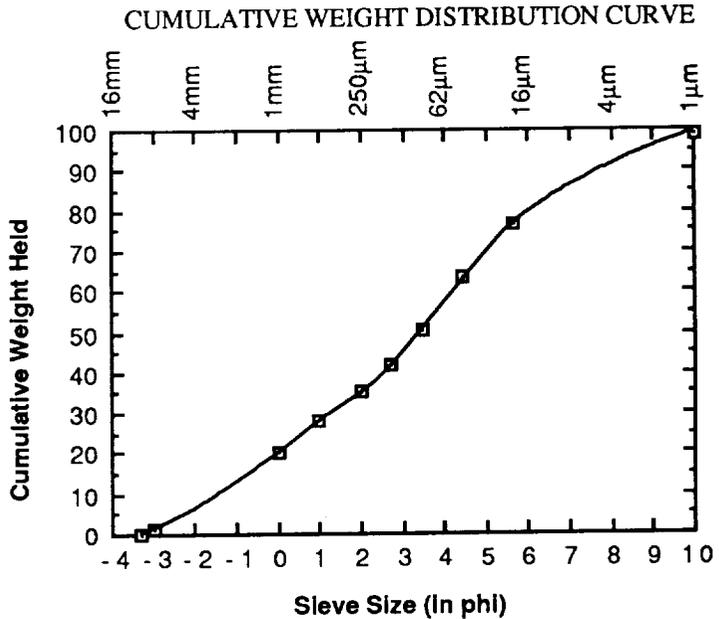
Double drive tube 79001/79002 was taken 2 meters from two 1 meter craters on the southeast flank of the Van Serg crater ejecta blanket, at Station 9. The site has a gentle slope to the southeast away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Astronauts report that driving the first core was easy. The second one was a little tougher, and then it got very hard at the end. >1mm particles were hand picked and not sieved, where they would have broken down, so there is a discontinuity in the size distribution caused by the lab procedures.

## MATURITY INDEX:

$I_g/FeO = 43$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	40.59
500.00	2.90
250.00	5.28
150.00	6.24
90.00	7.48
45.00	11.18
20.00	11.13
1.00	14.21

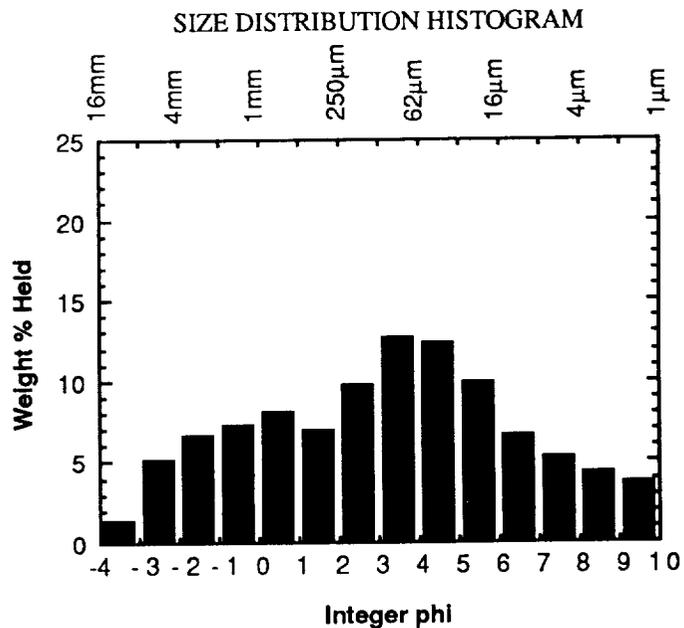


## GRAPHIC AND MOMENT MEASURES

Mean:	1.61
Median:	2.17
Mode:	-2.50
Sorting:	3.86
Skewness:	-0.06
Kurtosis:	0.68

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-3.21
16	-2.85
25	-2.37
50	2.17
75	4.60
84	5.52
95	8.42



# Soil: 79002

(subsample 79002,145) (Core; depth below surface, 9.5 - 10.0 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

79220 is part of a trench sequence (79220 depth 0-2 cm, 79240 depth 2-7 cm, 79260 depth 7-17 cm) taken from the southwest flank of the Van Serg crater ejecta blanket near Station 9. The uppermost 7 cm of the trench is gray; below that is a light gray or white layer. The site has a gently woutheast slope away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Two fresh 1 meter craters are found near the trench.

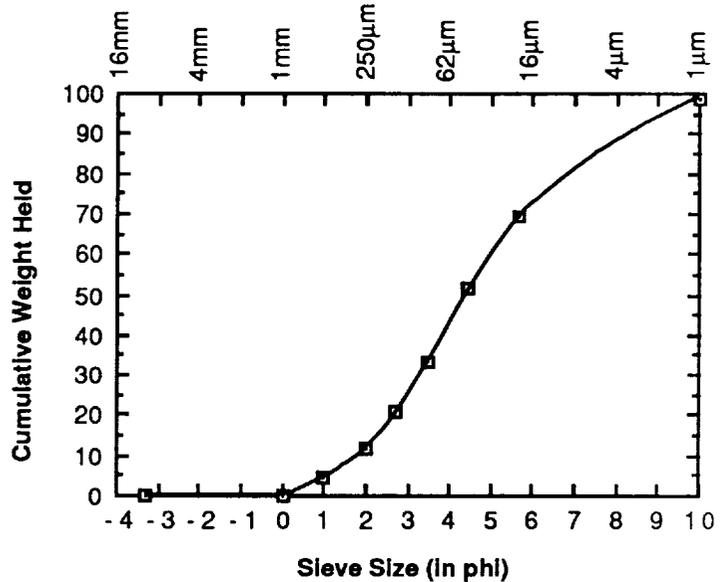
## MATURITY INDEX:

$I_s/FeO = 58$  (submature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	4.65
250.00	7.14
150.00	8.95
90.00	12.35
45.00	18.59
20.00	17.49
1.00	29.83

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



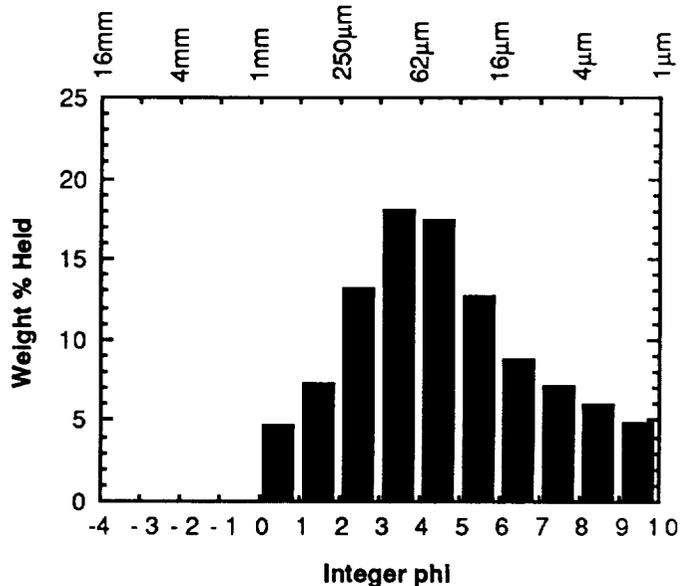
## GRAPHIC AND MOMENT MEASURES

Mean:	4.73
Median:	4.38
Mode:	3.50
Sorting:	2.50
Skewness:	0.20
Kurtosis:	1.03

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.06
16	2.38
25	3.01
50	4.38
75	6.26
84	7.42
95	9.21

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 79002

(subsample 79002,143) (Core; depth below surface, 6.0 - 6.5 cm)

D.S. McKay PI

## LOCATION COMMENTS:

79220 is part of a trench sequence (79220 depth 0-2 cm, 79240 depth 2-7 cm, 79260 depth 7-17 cm) taken from the southwest flank of the Van Serg crater ejecta blanket near Station 9. The uppermost 7 cm of the trench is gray, below that is a light gray or white layer. The site has a gently woutheast slope away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Two fresh 1 meter craters are found near the trench.

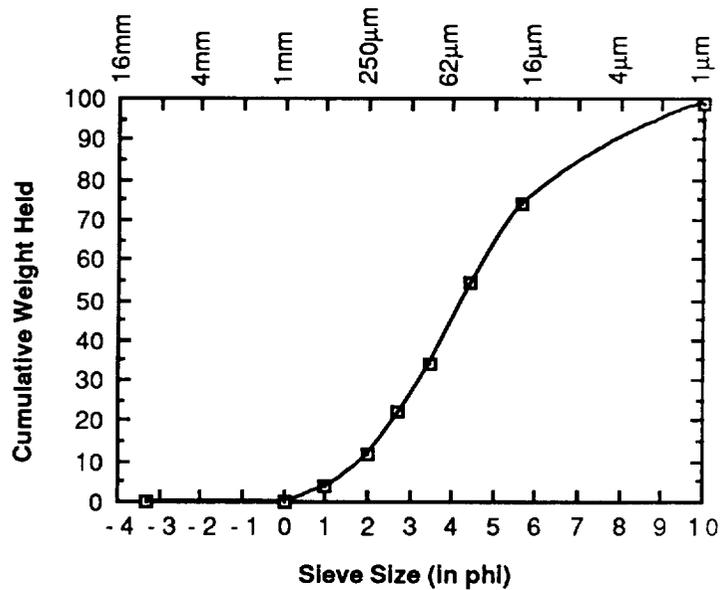
## MATURITY INDEX:

$I_s/FeO = 97$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	4.02
250.00	7.87
150.00	10.03
90.00	12.28
45.00	20.36
20.00	19.32
1.00	25.12

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



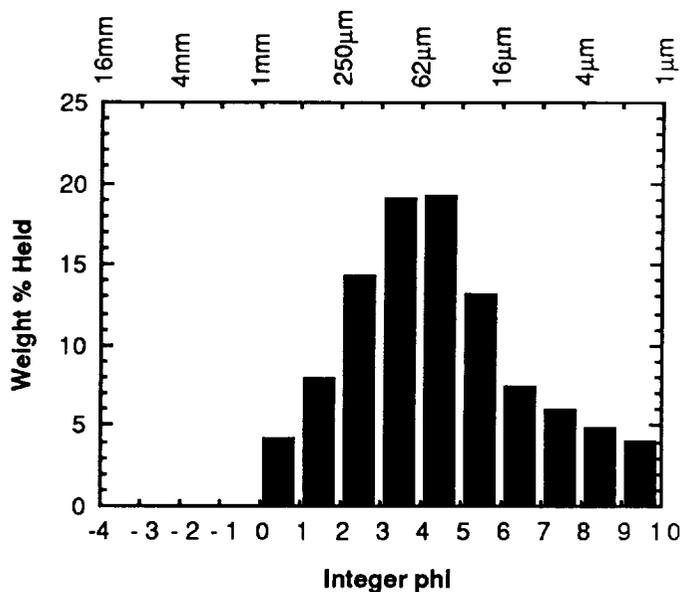
## GRAPHIC AND MOMENT MEASURES

Mean:	4.52
Median:	4.24
Mode:	4.50
Sorting:	2.36
Skewness:	0.20
Kurtosis:	1.14

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	1.18
16	2.33
25	2.94
50	4.24
75	5.77
84	7.00
95	9.06

## SIZE DISTRIBUTION HISTOGRAM



# Soil: 79002

(subsample 79002,142) (Core; depth below surface, 2.3 - 2.8 cm)

D.S. McKay PI

## LOCATION COMMENTS:

79220 is part of a trench sequence (79220 depth 0-2 cm, 79240 depth 2-7 cm, 79260 depth 7-17 cm) taken from the southwest flank of the Van Serg crater ejecta blanket near Station 9. The uppermost 7 cm of the trench is gray, below that is a light gray or white layer. The site has a gently woutheast slope away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Two fresh 1 meter craters are found near the trench.

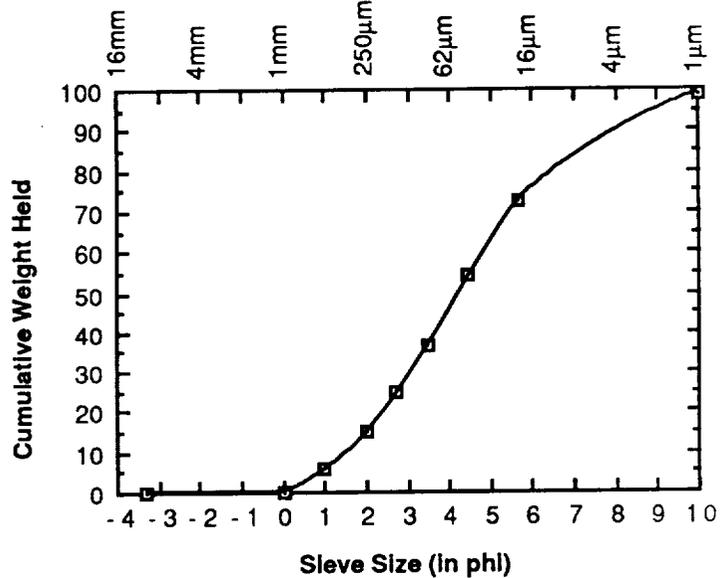
## MATURITY INDEX:

$I_g/FeO = 92$  (mature)

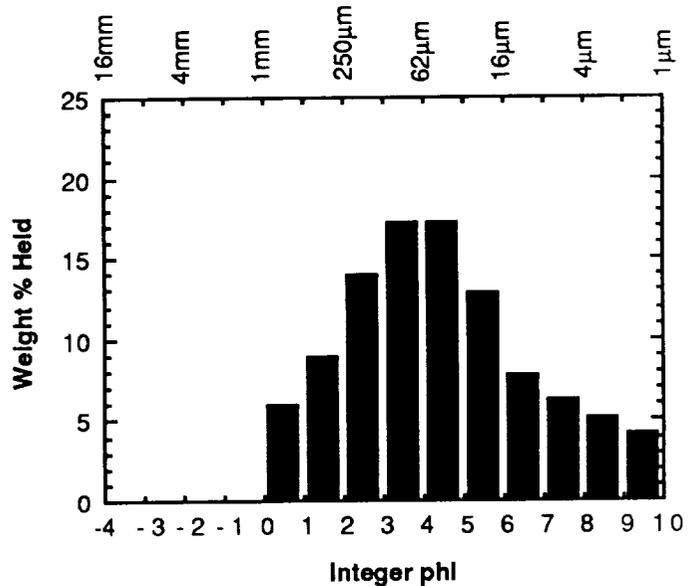
## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	5.87
250.00	8.88
150.00	9.91
90.00	11.87
45.00	17.87
20.00	18.28
1.00	26.32

CUMULATIVE WEIGHT DISTRIBUTION CURVE



SIZE DISTRIBUTION HISTOGRAM



## GRAPHIC AND MOMENT MEASURES

Mean:	4.48
Median:	4.22
Mode:	3.50
Sorting:	2.50
Skewness:	0.17
Kurtosis:	1.08

## MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	0.87
16	2.11
25	2.76
50	4.22
75	5.90
84	7.12
95	9.11

# Soil: 79002

(subsample 79002,140) (Core; depth below surface, 0.0 - 0.5 cm)  
D.S. McKay PI

## LOCATION COMMENTS:

79220 is part of a trench sequence (79220 depth 0-2 cm, 79240 depth 2-7 cm, 79260 depth 7-17 cm) taken from the southwest flank of the Van Serg crater ejecta blanket near Station 9. The uppermost 7 cm of the trench is gray, below that is a light gray or white layer. The site has a gently woutheast slope away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Two fresh 1 meter craters are found near the trench.

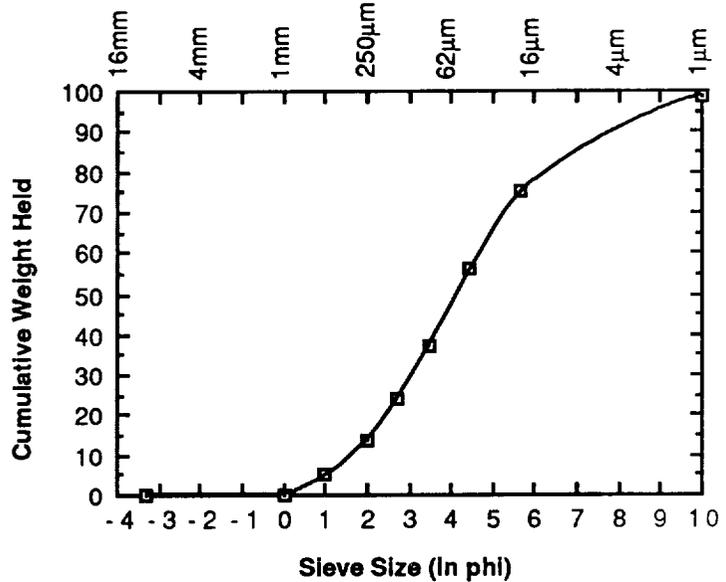
## MATURITY INDEX:

$I_g/FeO = 77$  (mature)

## TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
1000.00	0.00
500.00	4.91
250.00	8.95
150.00	10.58
90.00	12.67
45.00	18.94
20.00	18.86
1.00	24.08

## CUMULATIVE WEIGHT DISTRIBUTION CURVE



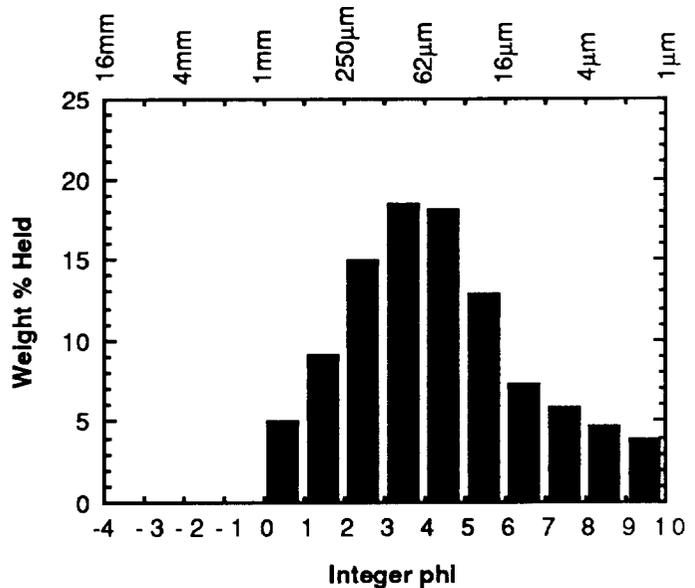
## GRAPHIC AND MOMENT MEASURES

Mean:	4.41
Median:	4.15
Mode:	3.50
Sorting:	2.39
Skewness:	0.19
Kurtosis:	1.14

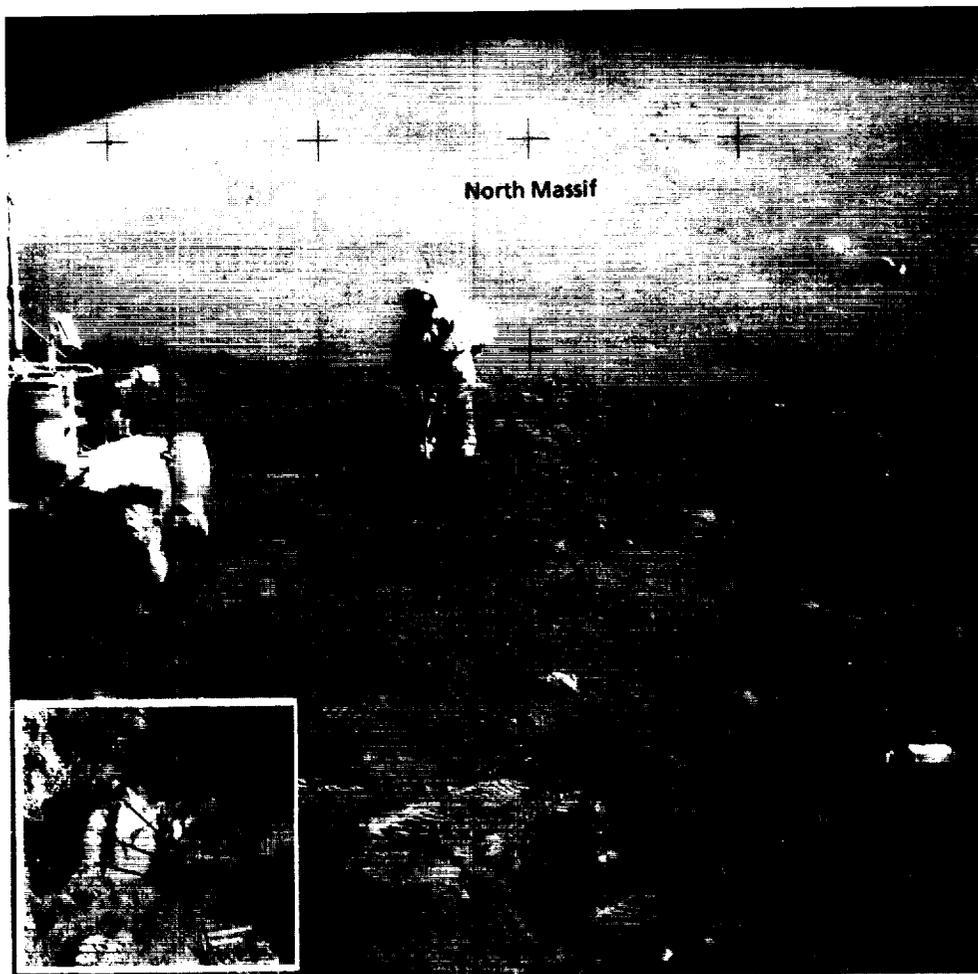
## MOMENT MEASURE DATA

Wt % held	$\emptyset$ size
5	1.02
16	2.17
25	2.77
50	4.15
75	5.65
84	6.90
95	9.03

## SIZE DISTRIBUTION HISTOGRAM



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79220 Sample Environment

AS17-143-21837  
(insert AS17-142-21827)

During sampling.

**Soil: 79220**  
(subsample 79221,1)  
D.S. McKay PI

**LOCATION COMMENTS:**

79220 is part of a trench sequence (79220 depth 0-2 cm, 79240 depth 2-7 cm, 79260 depth 7-17 cm) taken from the southwest flank of the Van Serg crater ejecta blanket near Station 9. The uppermost 7 cm of the trench is gray, below that is a light gray or white layer. The site has a gently southeast slope away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Two fresh 1 meter craters are found near the trench.

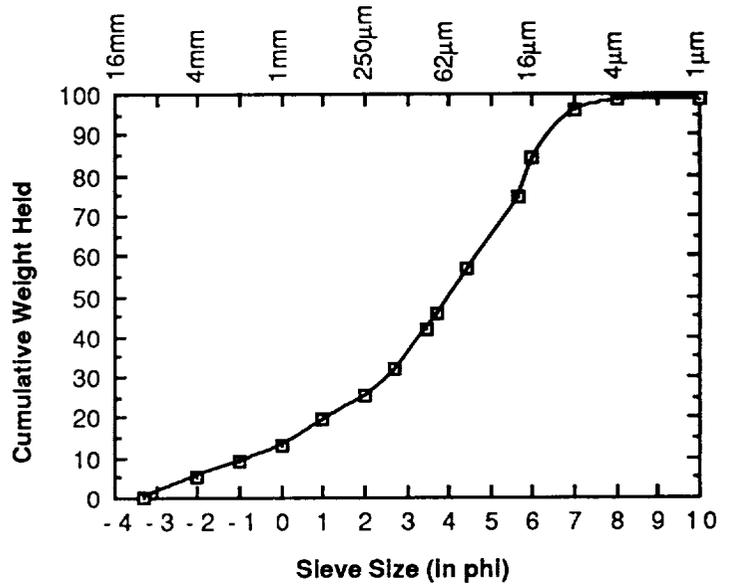
**MATURITY INDEX:**

$I_s/FeO = 81$  (mature)

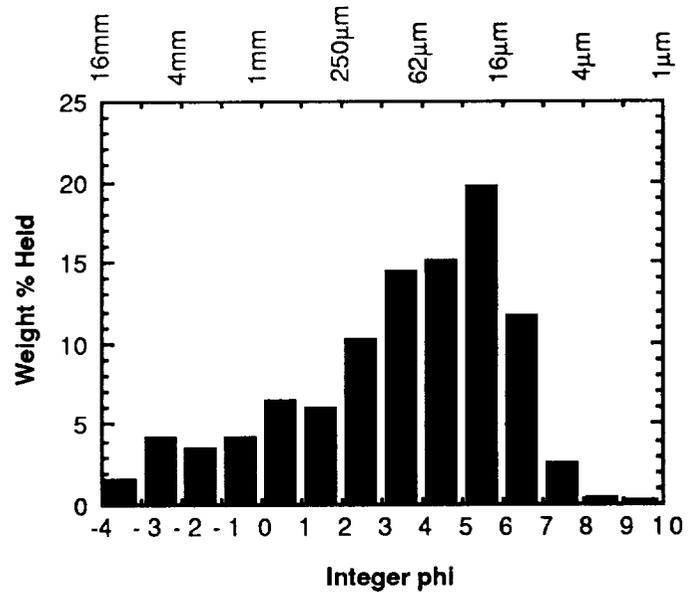
**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	5.49
2000.00	3.51
1000.00	4.07
500.00	6.40
250.00	5.90
150.00	6.76
90.00	9.90
75.00	3.74
45.00	11.25
20.00	17.21
15.60	10.23
7.80	11.59
3.90	2.48
1.00	0.46

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	3.48
Median:	4.01
Mode:	5.50
Sorting:	2.73
Skewness:	-0.33
Kurtosis:	0.98

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.13
16	0.46
25	1.94
50	4.01
75	5.68
84	5.98
95	6.77

Soil: 79220  
(subsample 79221,27)  
W.V. Engelhardt PI

LOCATION COMMENTS:

79220 is part of a trench sequence (79220 depth 0-2 cm, 79240 2-7 cm, 79260 depth 7-17 cm) taken from the southwest flank of the Van Serg crater ejecta blanket near station 9. The uppermost 7 cm of the trench is gray, below that is a light gray or white layer. The site has a gently southeast slope away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Two fresh 1 meter craters are found near the trench.

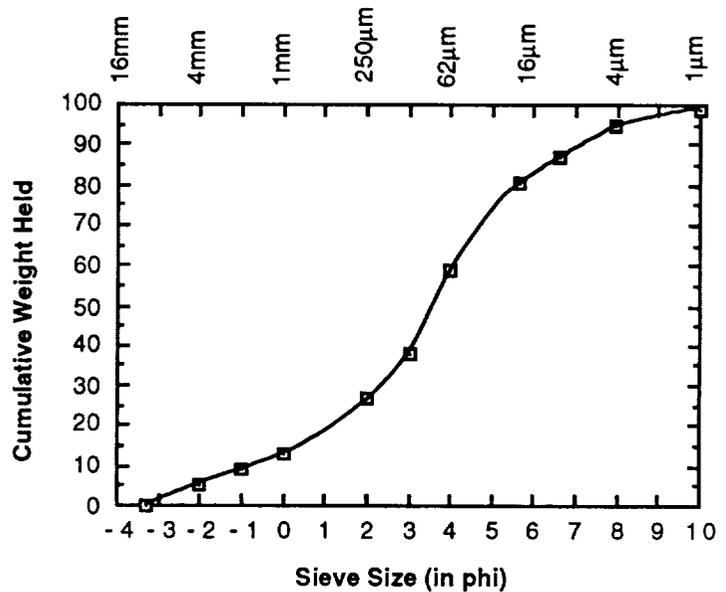
MATURITY INDEX:

$I_g/FeO = 81$  (mature)

TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	5.49
2000	3.51
1000	4.07
250	13.49
125	11.43
63	20.97
20	21.57
10	6.44
4	7.65
1	4.38

CUMULATIVE WEIGHT DISTRIBUTION CURVE



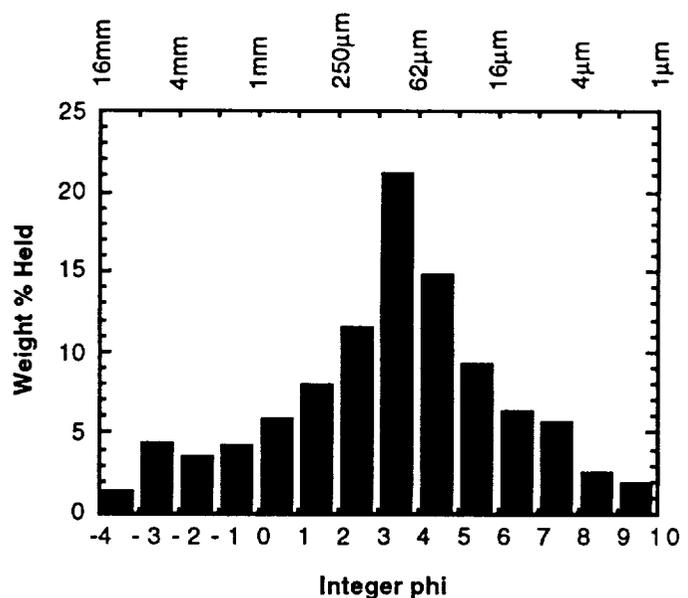
GRAPHIC AND MOMENT MEASURES

Mean:	3.43
Median:	3.55
Mode:	3.5
Sorting:	2.95
Skewness:	-0.09
Kurtosis:	1.28

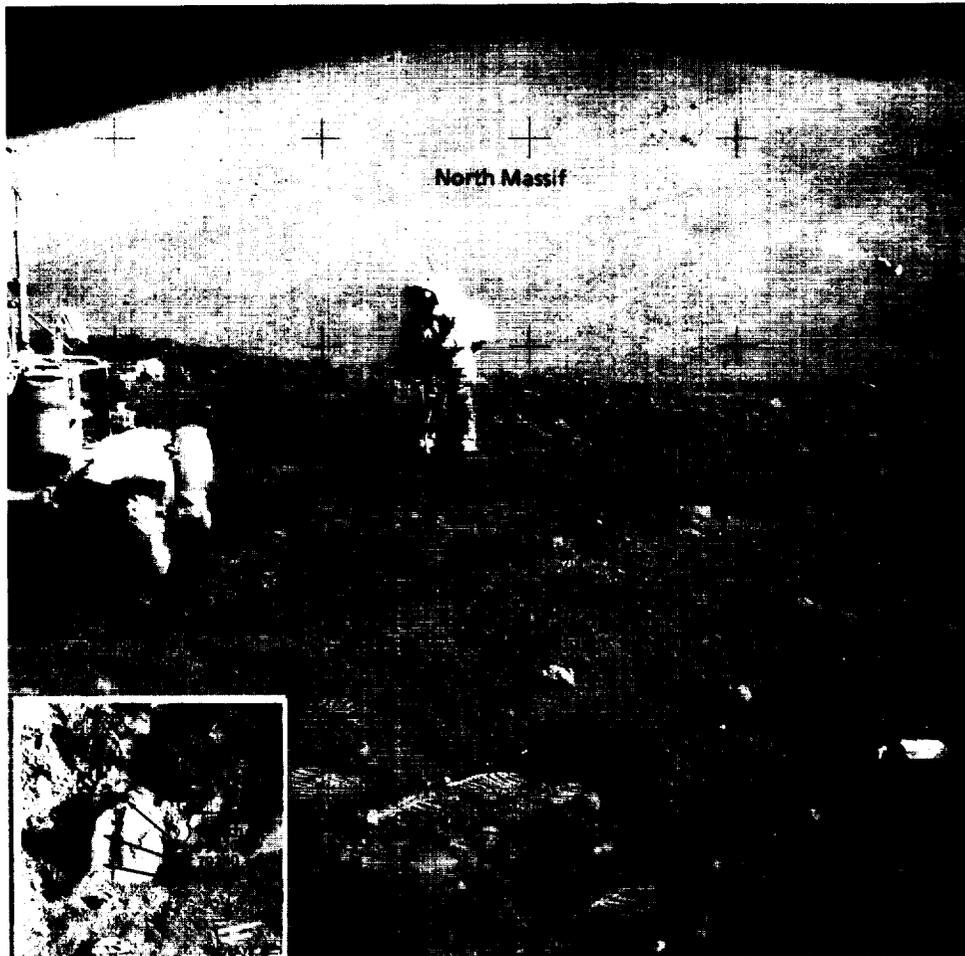
MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.13
16	0.57
25	1.82
50	3.55
75	5.08
84	6.17
95	8.1

SIZE DISTRIBUTION HISTOGRAM



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79240 Sample Environment

AS17-143-21837  
(insert AS17-142-21827)

During sampling.



**Soil: 79240**  
(subsample 79241,17)  
E.A. King PI

**LOCATION COMMENTS:**

79220 is part of a trench sequence (79220 depth 0-2 cm, 79240 depth 2-7 cm, 79260 depth 7-17 cm) taken from the southwest flank of the Van Serg crater ejecta blanket near Station 9. The uppermost 7 cm of the trench is gray, below that is a light gray or white layer. The site has a gently southeast slope away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Two fresh 1 meter craters are found near the trench.

**MATURITY INDEX:**

$I_g/FeO = 51$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	5.19
2000.00	5.00
1000.00	5.42
841.00	1.17
420.00	5.79
250.00	6.83
177.00	4.92
150.00	3.12
125.00	3.01
105.00	4.32
74.00	6.59
53.00	5.48
44.00	4.81
37.00	3.90
30.00	7.57
20.00	7.46
10.00	9.35
1.00	9.07

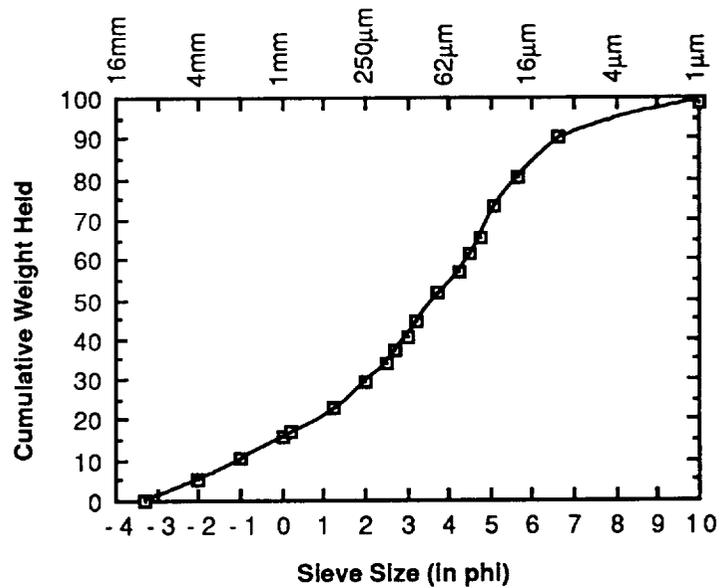
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.23
Median:	3.65
Mode:	4.50
Sorting:	3.02
Skewness:	-0.16
Kurtosis:	1.15

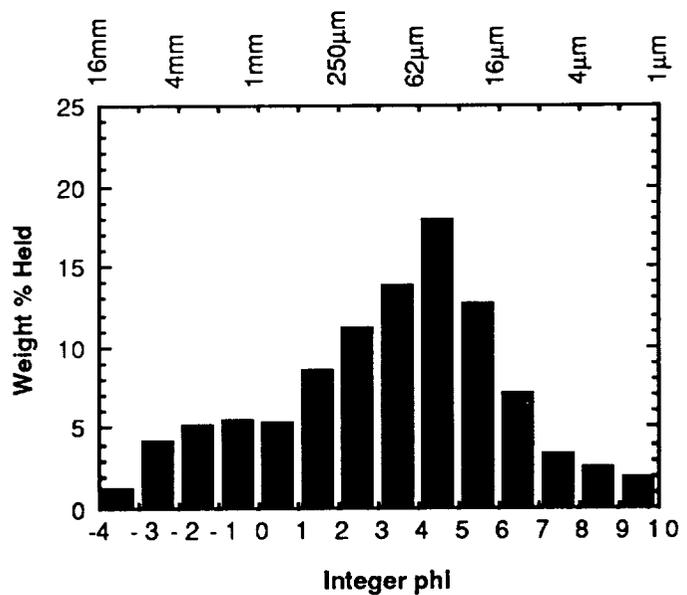
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.04
16	0.08
25	1.54
50	3.65
75	5.18
84	5.96
95	8.20

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



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79260 Sample Environment

AS17-143-21837  
(insert AS17-142-21827)

During sampling.

**Soil: 79260**  
(subsample 79261,1)  
D.S. McKay PI

**LOCATION COMMENTS:**

79220 is part of a trench sequence (79220 depth 0-2 cm, 79240 depth 2-7 cm, 79260 depth 7-17 cm) taken from the southwest flank of the Van Serg crater ejecta blanket near Station 9. The uppermost 7 cm of the trench is gray, below that is a light gray or white layer. The site has a gently southeast slope away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Two fresh 1 meter craters are found near the trench.

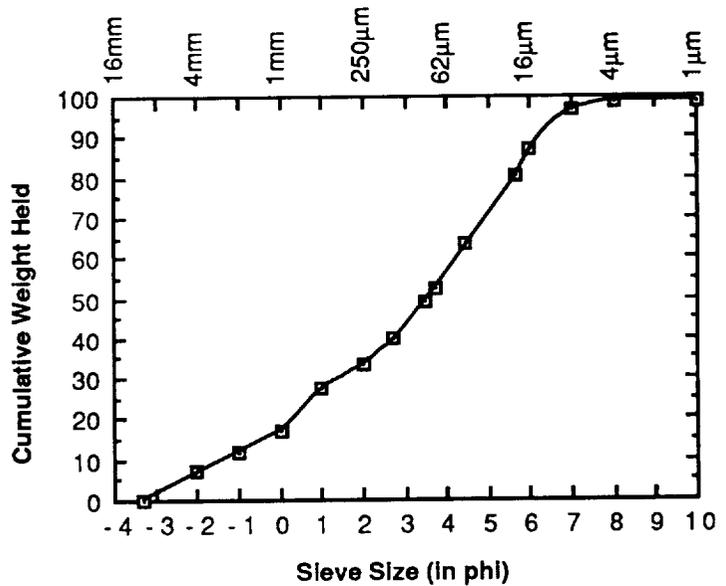
**MATURITY INDEX:**

$I_s/FeO = 43$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu m$ )	Wt %
10000.00	0.00
4000.00	6.92
2000.00	5.00
1000.00	5.13
500.00	10.38
250.00	6.13
150.00	6.33
90.00	9.20
75.00	3.53
45.00	10.73
20.00	16.87
15.60	6.93
7.80	9.47
3.90	2.10
1.00	0.29

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



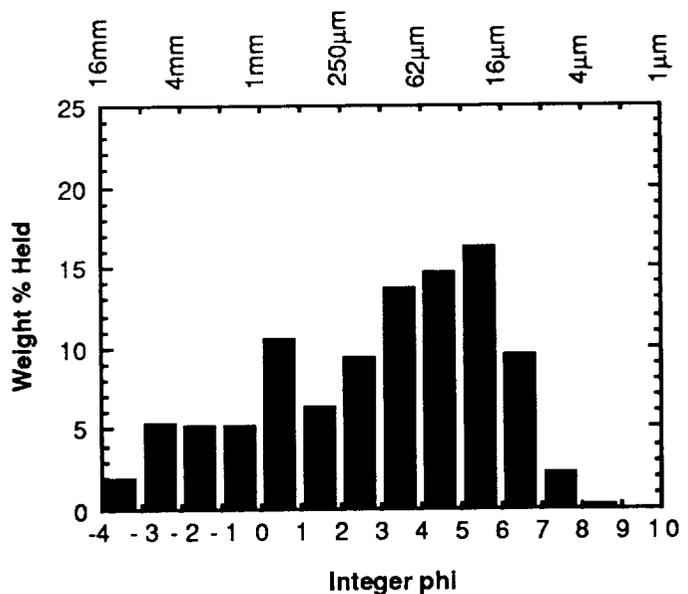
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.06
Median:	3.54
Mode:	5.50
Sorting:	2.88
Skewness:	-0.27
Kurtosis:	0.81

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.37
16	-0.20
25	0.72
50	3.54
75	5.28
84	5.84
95	6.67

**SIZE DISTRIBUTION HISTOGRAM**



Soil: 79260  
(subsample 79261,19)  
W.V. Engelhardt PI

LOCATION COMMENTS:

79260 is part of a trench sequence (79220 depth 0-2 cm, 79240 2-7 cm, 79260 depth 7-17 cm) taken from the southwest flank of the Van Serg crater ejecta blanket near station 9. The uppermost 7 cm of the trench is gray, below that is a light gray or white layer. The site has a gently southeast slope away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Two fresh 1 meter craters are found near the trench.

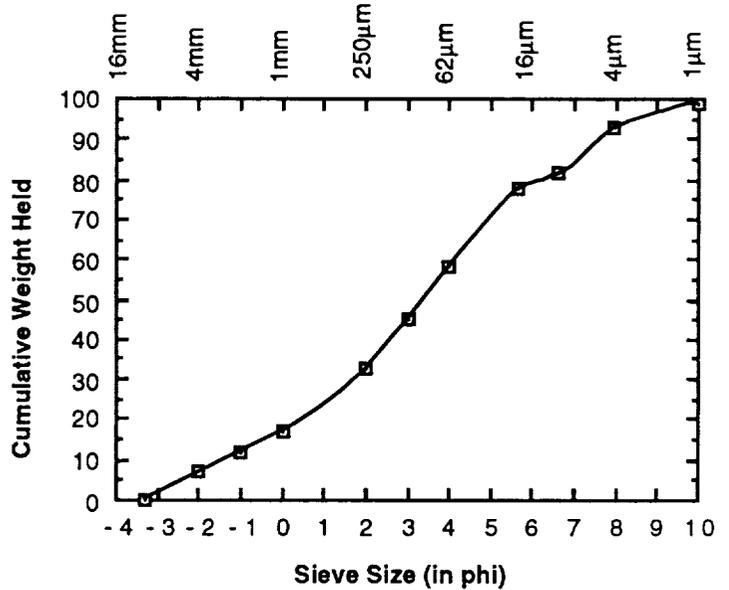
MATURITY INDEX:

$I_g/FeO = 43$  (submature)

TABULATED SIEVE DATA

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	6.92
2000	5.01
1000	5.13
250	15.42
125	12.63
63	13.04
20	19.6
10	3.69
4	11.32
1	6.23

CUMULATIVE WEIGHT DISTRIBUTION CURVE



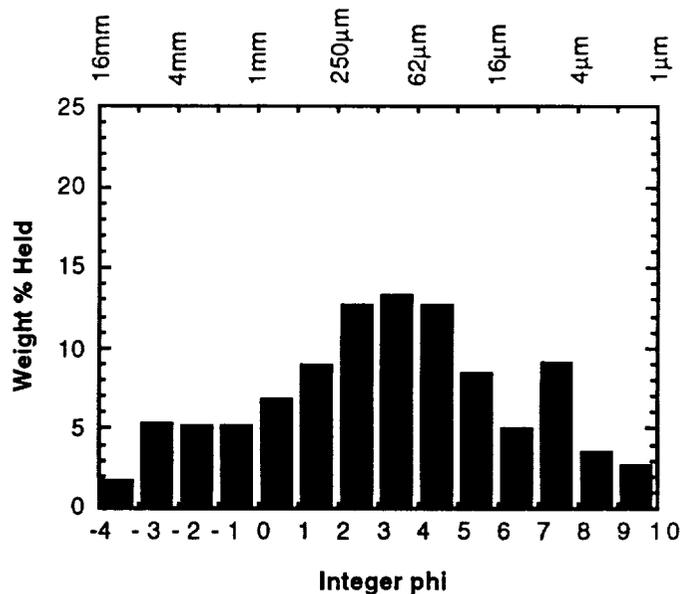
GRAPHIC AND MOMENT MEASURES

Mean:	3.41
Median:	3.37
Mode:	3.5
Sorting:	3.48
Skewness:	-0.02
Kurtosis:	1.07

MOMENT MEASURE DATA

Wt % held	$\phi$ size
5	-2.37
16	-0.2
25	1.17
50	3.37
75	5.34
84	7.07
95	8.57

SIZE DISTRIBUTION HISTOGRAM



**Soil: 79260**  
(subsample 79261,23)  
E.A. King PI

**LOCATION COMMENTS:**

79220 is part of a trench sequence (79220 depth 0-2 cm, 79240 depth 2-7 cm, 79260 depth 7-17 cm) taken from the southwest flank of the Van Serg crater ejecta blanket near Station 9. The uppermost 7 cm of the trench is gray, below that is a light gray or white layer. The site has a gently southeast slope away from Van Serg crater. Fragments 2-20 cm cover 3% of the surface. Two fresh 1 meter craters are found near the trench.

**MATURITY INDEX:**

$I_s/FeO = 43$  (submature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000.00	0.00
4000.00	6.92
2000.00	5.00
1000.00	5.13
841.00	1.68
420.00	6.61
250.00	5.96
177.00	5.53
150.00	2.85
125.00	3.69
105.00	3.74
74.00	6.12
53.00	4.91
44.00	4.22
37.00	3.96
30.00	9.88
20.00	7.78
10.00	8.55
1.00	6.45

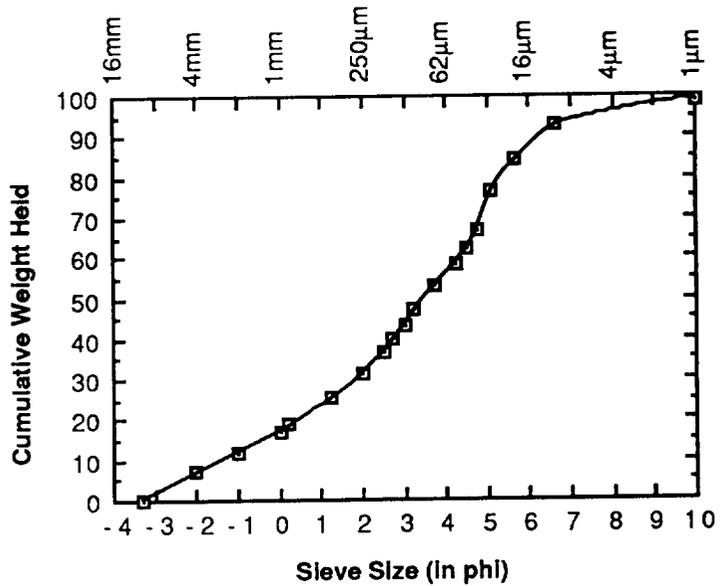
**GRAPHIC AND MOMENT MEASURES**

Mean:	2.97
Median:	3.47
Mode:	4.50
Sorting:	2.97
Skewness:	-0.21
Kurtosis:	1.08

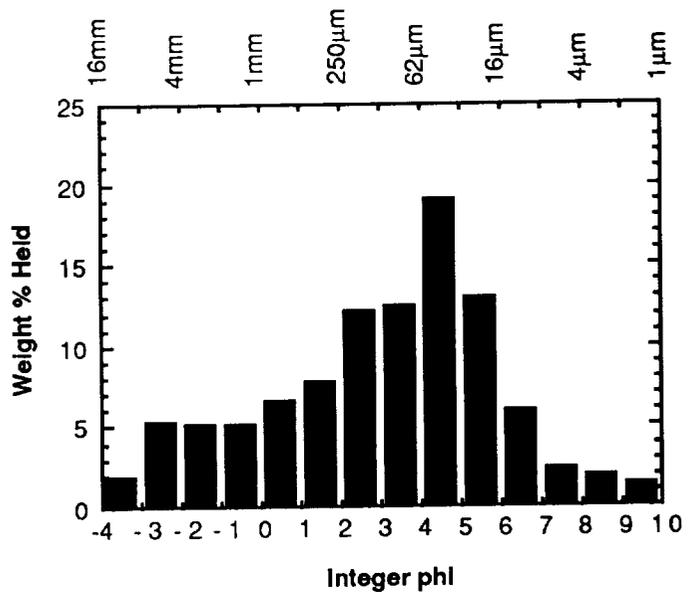
**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.37
16	-0.20
25	1.20
50	3.47
75	5.00
84	5.64
95	7.61

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



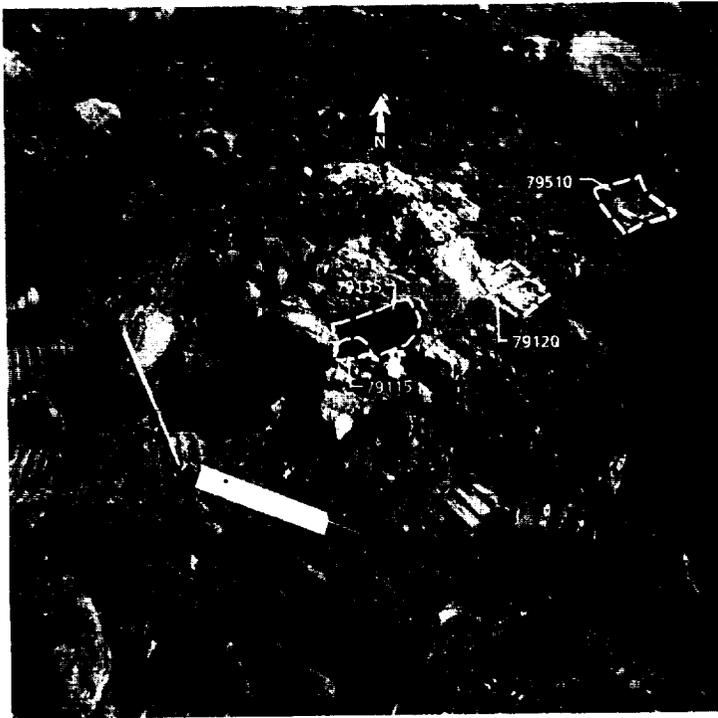


ORIGINAL FILE  
BLACK AND WHITE PHOTOGRAPH

79510 Sample Environment

AS17-146-22414

Pre-sampling.



79510 Sample Environment

AS17-146-22415

Post-sampling.

**Soil: 79510**  
 (subsample 79511,4)  
 W.V. Engelhardt PI

**LOCATION COMMENTS:**

This surface sample was collected 2 meters east of the large boulder where 79120 was collected. Both samples were taken from the southeast rim of Van Serg crater, at Station 9. There is no slope at the rim crest, fragments 2-30 cm cover 10% of the surface, the largest boulder in the area is 1.5 meters. Craters are negligible on the Van Serg crater rim.

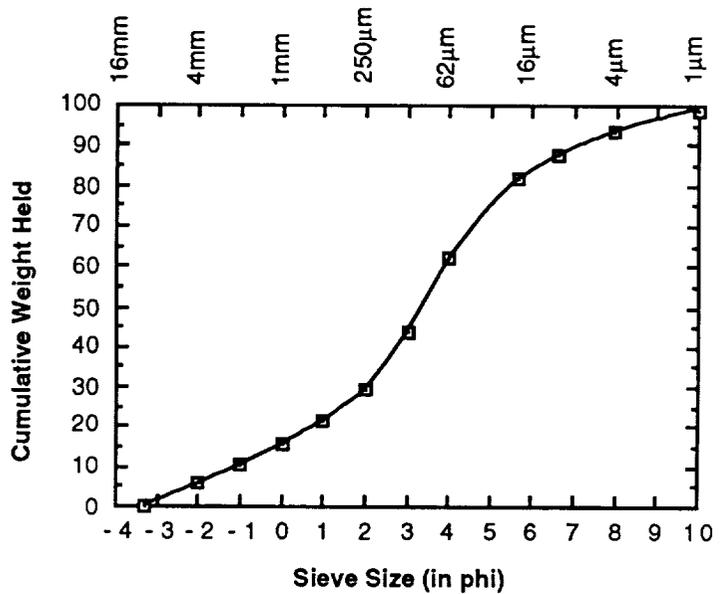
**MATURITY INDEX:**

$I_s/FeO = 61$  (mature)

**TABULATED SIEVE DATA**

Sieve Size ( $\mu\text{m}$ )	Wt %
10000	0
4000	5.7
2000	4.63
1000	5.27
500	6.26
250	7.6
125	14.19
63	18.2
20	19.62
10	6.18
4	5.76
1	5.59

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



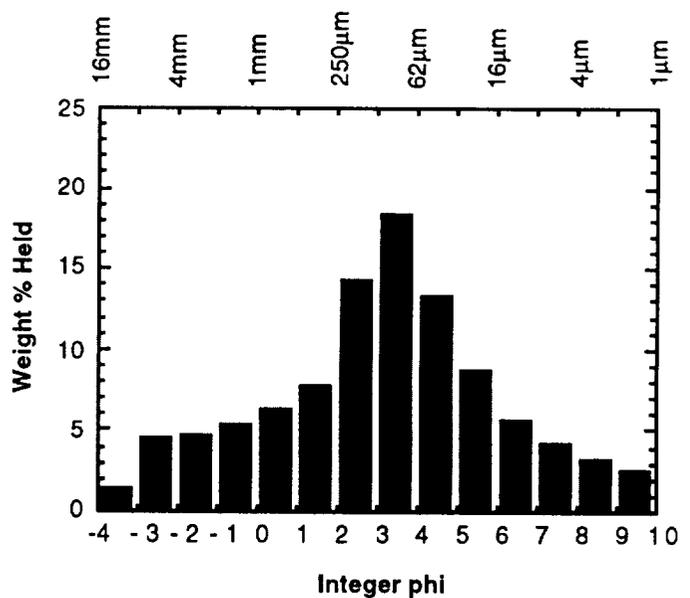
**GRAPHIC AND MOMENT MEASURES**

Mean:	3.15
Median:	3.36
Mode:	3.5
Sorting:	3.1
Skewness:	-0.07
Kurtosis:	1.24

**MOMENT MEASURE DATA**

Wt % held	$\phi$ size
5	-2.16
16	0.07
25	1.44
50	3.36
75	4.96
84	6.02
95	8.46

**SIZE DISTRIBUTION HISTOGRAM**



**Soil: 79510**  
 (subsample 79511,7)  
 E.A. King PI

**LOCATION COMMENTS:**

This surface sample was collected 2 meters east of the large boulder where 79120 was collected. Both samples were taken from the southeast rim of Van Serg crater, at Station 9. There is no slope at the rim crest, fragments 2-30 cm cover 10% of the surface, the largest boulder in the area is 1.5 meters. Craters are negligible on the Van Serg crater rim.

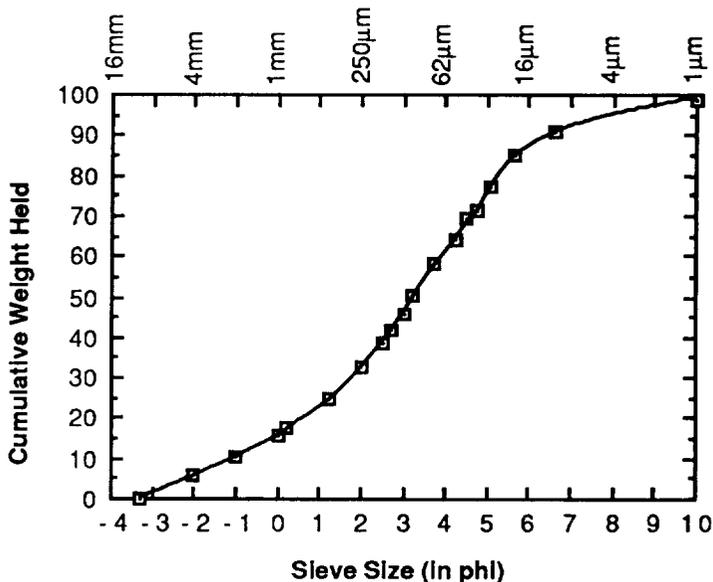
**MATURITY INDEX:**

$I_s/FeO = 61$  (mature)

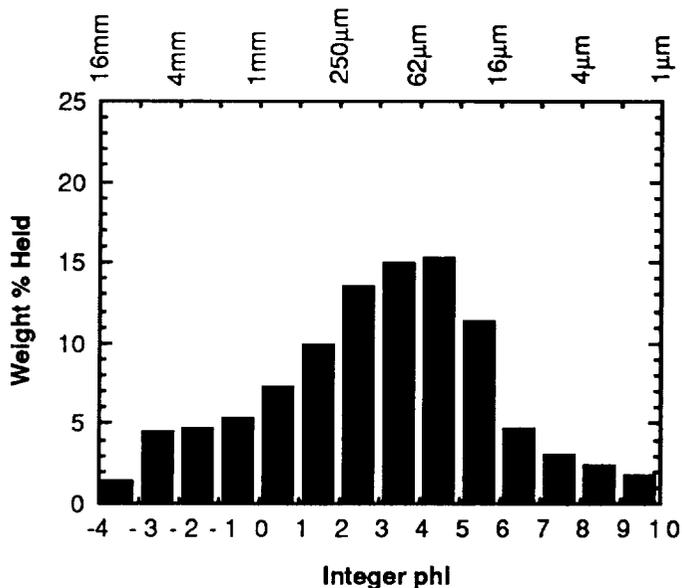
**TABULATED SIEVE DATA**

Sieve Size (μm)	Wt %
10000.00	0.00
4000.00	5.69
2000.00	4.62
1000.00	5.27
841.00	1.89
420.00	7.22
250.00	7.93
177.00	5.96
150.00	3.47
125.00	3.96
105.00	4.57
74.00	7.40
53.00	5.90
44.00	5.20
37.00	2.02
30.00	6.19
20.00	7.70
10.00	5.88
1.00	8.13

**CUMULATIVE WEIGHT DISTRIBUTION CURVE**



**SIZE DISTRIBUTION HISTOGRAM**



**GRAPHIC AND MOMENT MEASURES**

Mean:	2.94
Median:	3.22
Mode:	4.50
Sorting:	2.91
Skewness:	-0.10
Kurtosis:	1.14

**MOMENT MEASURE DATA**

Wt % held	Ø size
5	-2.16
16	0.06
25	1.29
50	3.22
75	4.94
84	5.53
95	8.03



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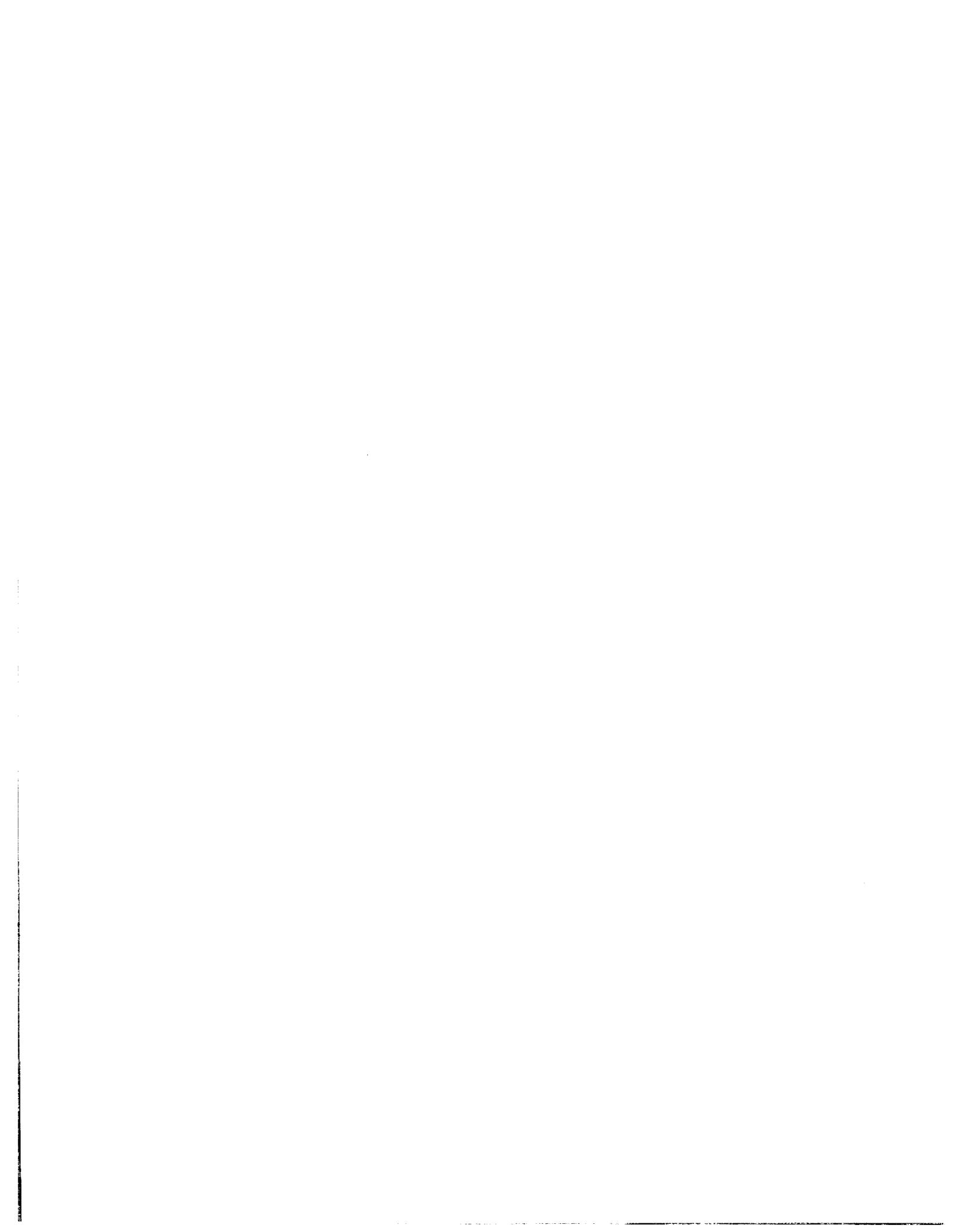
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